PETROL ENGINE

034 - GB - 11/88

Ref. ML RE 01

XU9 J4

Overhaul

TO BE FILED IN THE UNIT OVERHAUL BINDER

AUTOMOBILES PEUGEOT

direction des pièces et services

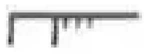
CONTENTS

SYMBOLS USED IN THIS BROCHURE

⊗ : **EXHAUST**

● : **INLET**

 **: PRODUCTION DIMENSION**

 **: REPAIR DIMENSION** (1st, 2nd, etc.)

All dimensions are in millimetres.

Modifications can affect adjustments and overhaul operations on these engines.

To maintain this brochure up-to-date, please enter below the source of Information (Service Information, Info-Flash, etc.), the type and subject of the modification and the page affected.

INFORMATION TYPE AND REFERENCE	MODIFICATION	SEE PAGE
Example : S.I. No.	Cylinder head tightening torque ... Nm instead of ... Nm	

CYLINDER HEAD

- Nominal height :

  h = 132 mm ± 0,15

- Maximum permissible bow :

  0,05 mm

- Maximum permissible gasket face machining :

  - 0,2 mm

Cylinder heads machined undersize on exchange engines are stamped **R** at **(a)**.

After re-assembly, the camshafts must turn freely by hand

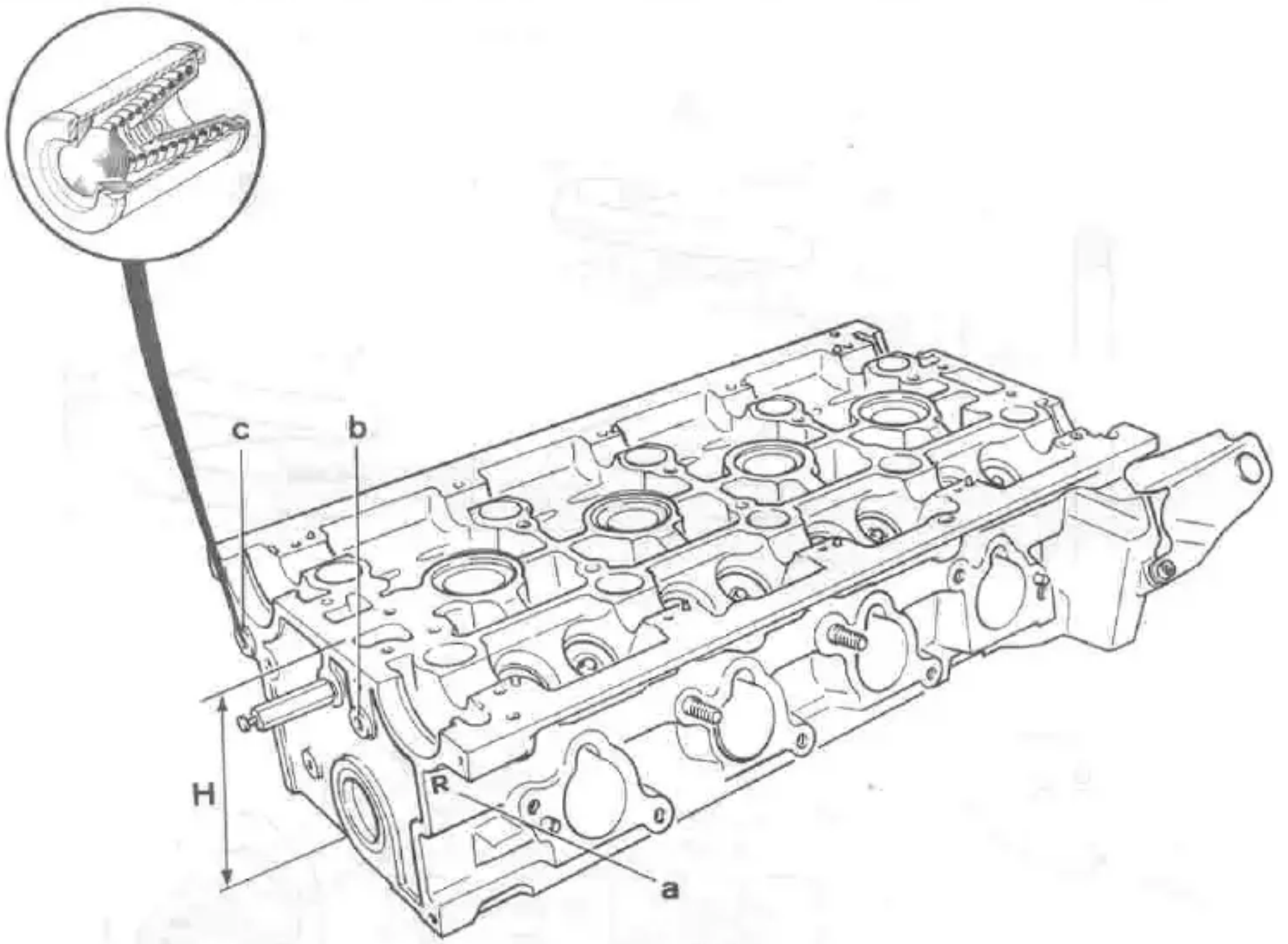
NOTE

Two non-return valves (set at 0,4 bars, 6 lbf/in2) located at (b) and (c) maintain a residual oil pressure in the hydraulic tappet supply lines.
In case of repair, **refit the plugs with threads coated with** LOCTITE and tighten to **15 Nm (11 lbf ft)**.

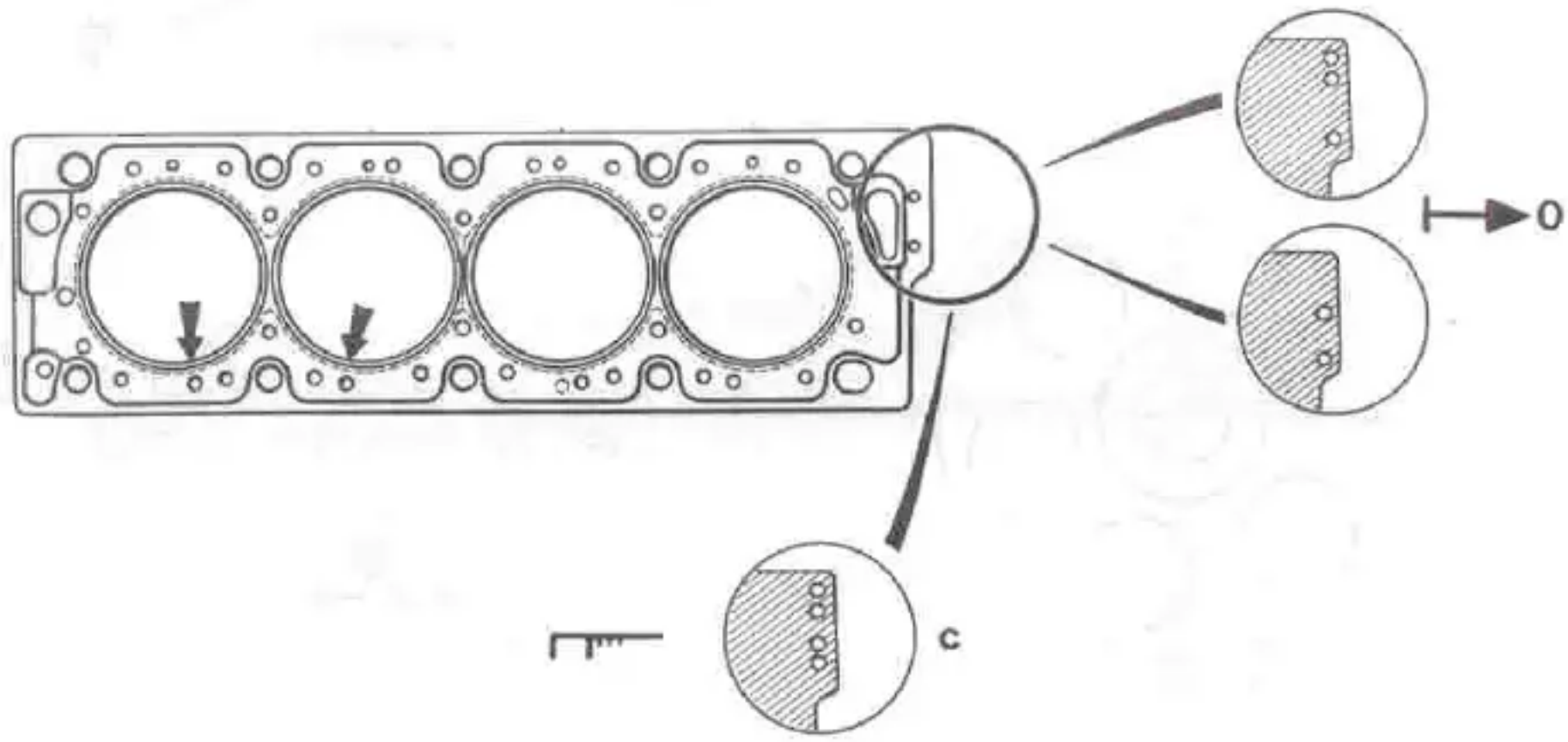
CYLINDER HEAD GASKET

Thickness :

- **1,45 mm** for original height head
- **1,65 mm** for machined exchange head



9-5-88 C72



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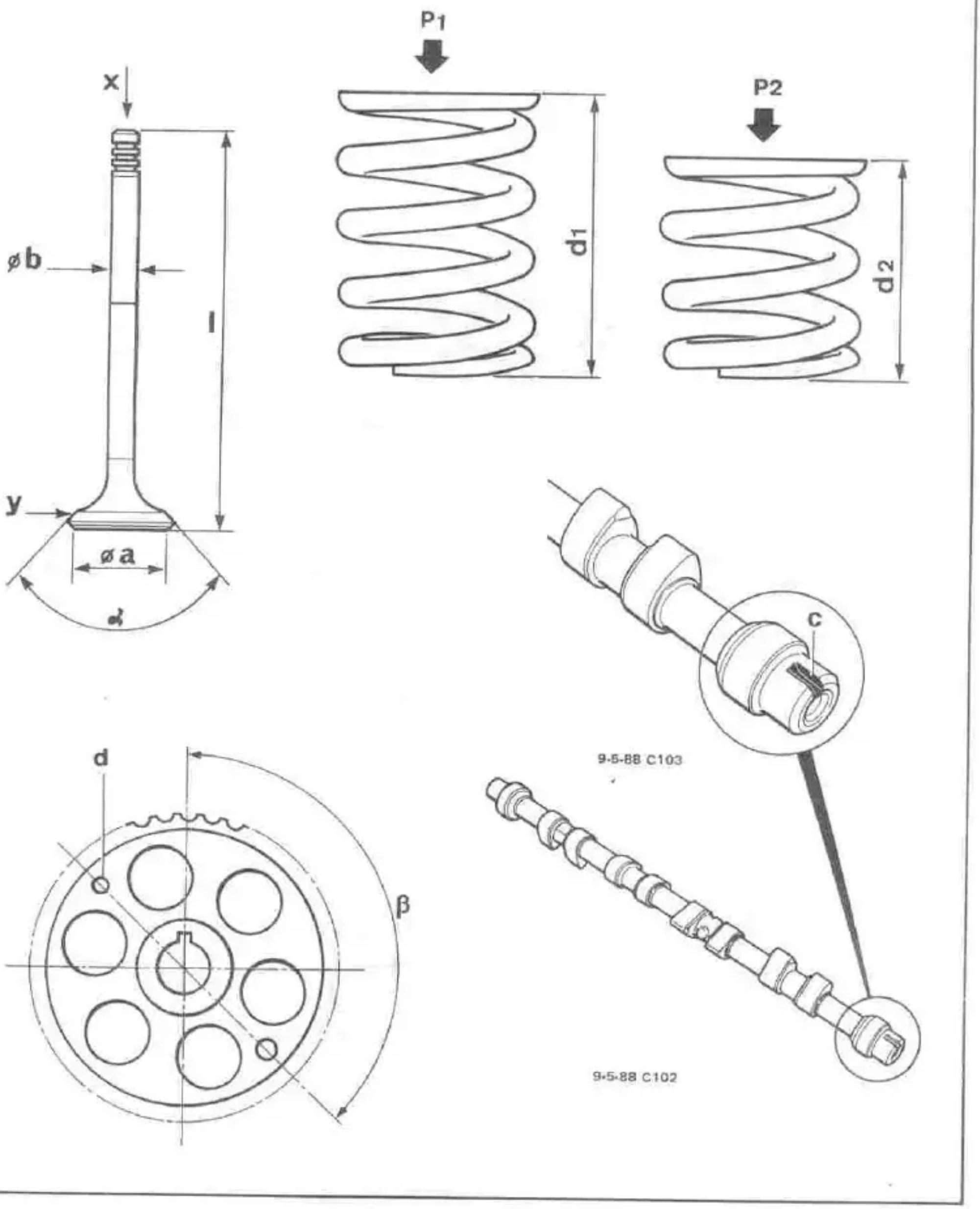


VALVES

⊗ : No machining is permissible

● : Faces **(x)** and **(y)** can be machined a maximum of 0,2 mm

	●	⊗
1 ± 0,1	104,48	103
ø a $^{+\ 0}_{-\ 0,2}$	34,7	29,7
ø b $^{0}_{-\ 0,015}$	6,98	6,98
α	90°	90°

VALVE SPRINGS

	Grey
P1 : da.N **d1** : mm	39,24 38,8
P2 : da.N **d2** : mm	80,93 29,6

CAMSHAFTS

The INLET camshaft has a keyway **(c)** at the distributor end

CAMSHAFT GEARS

Depending on the emission standard, the gears are identified by the figure **2** or **3** engraved at **(d)**.

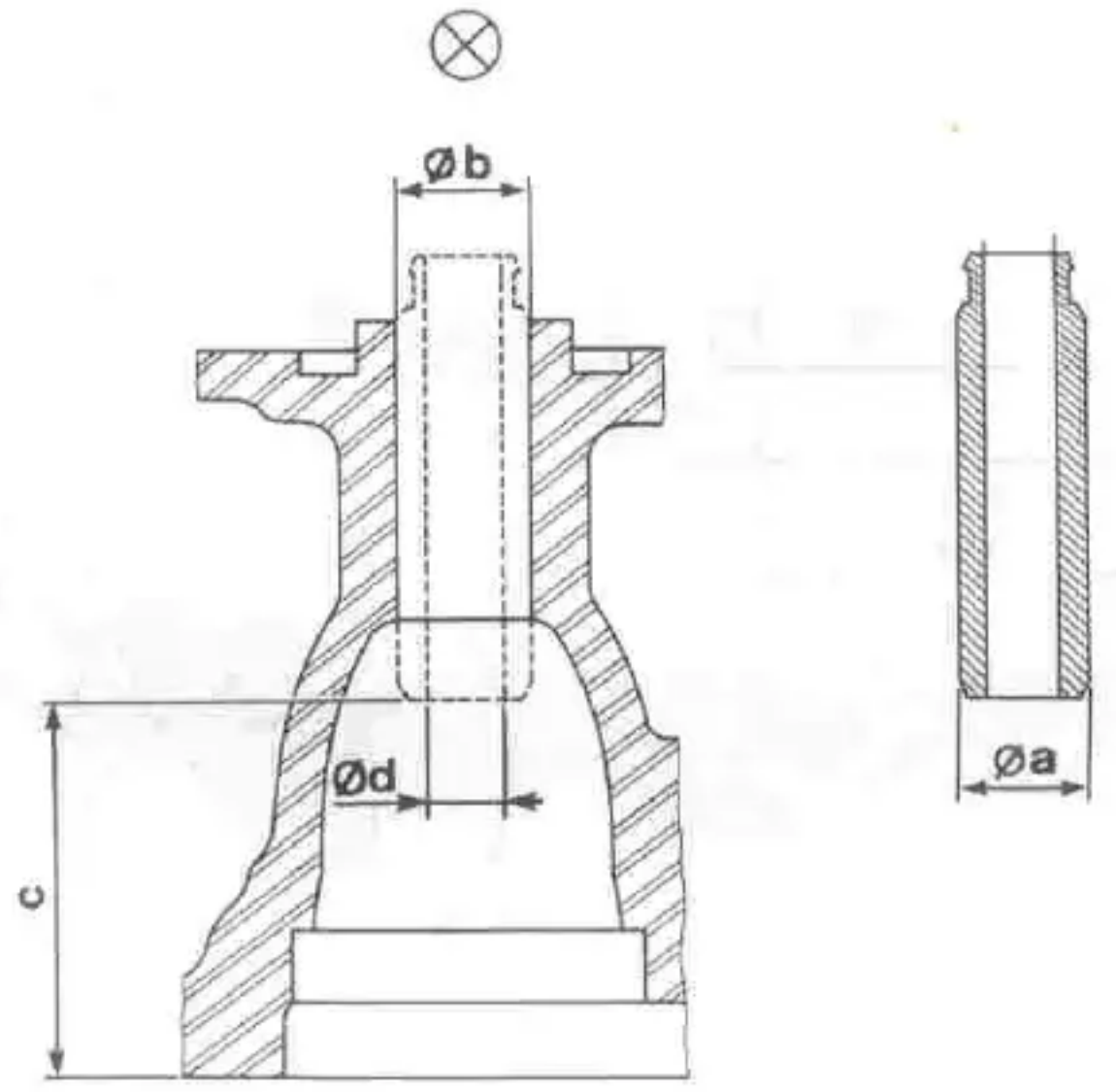
	●	⊗
XU9J4	2	2
XU9J4Z	3	2

	β
2	133°20'
3	131°50'

VALVE GUIDES

	⊗		●	
ø a ⊢> 0	12,034	$^{+0,039}_{+0,028}$	12,034	$^{+0,039}_{+0,028}$
	or 12,13		or 12,13	
1	12,29	$^{0}_{-0,011}$	12,29	$^{0}_{-0,011}$
2	12,59		12,59	
ø b ⊢> 0	12 or 12,055		12 or 12,055	
		$^{+0,027}_{0}$		$^{0}_{-0,011}$
1	12,215		12,215	
2	12,515		12,515	
c	45,3 ± 0,5		46,94 ± 0,5	
d	$7^{+0,022}_{0}$			

The diameter **d** is obtained by machining after fitting in the cylinder head


Øb
Ød
c
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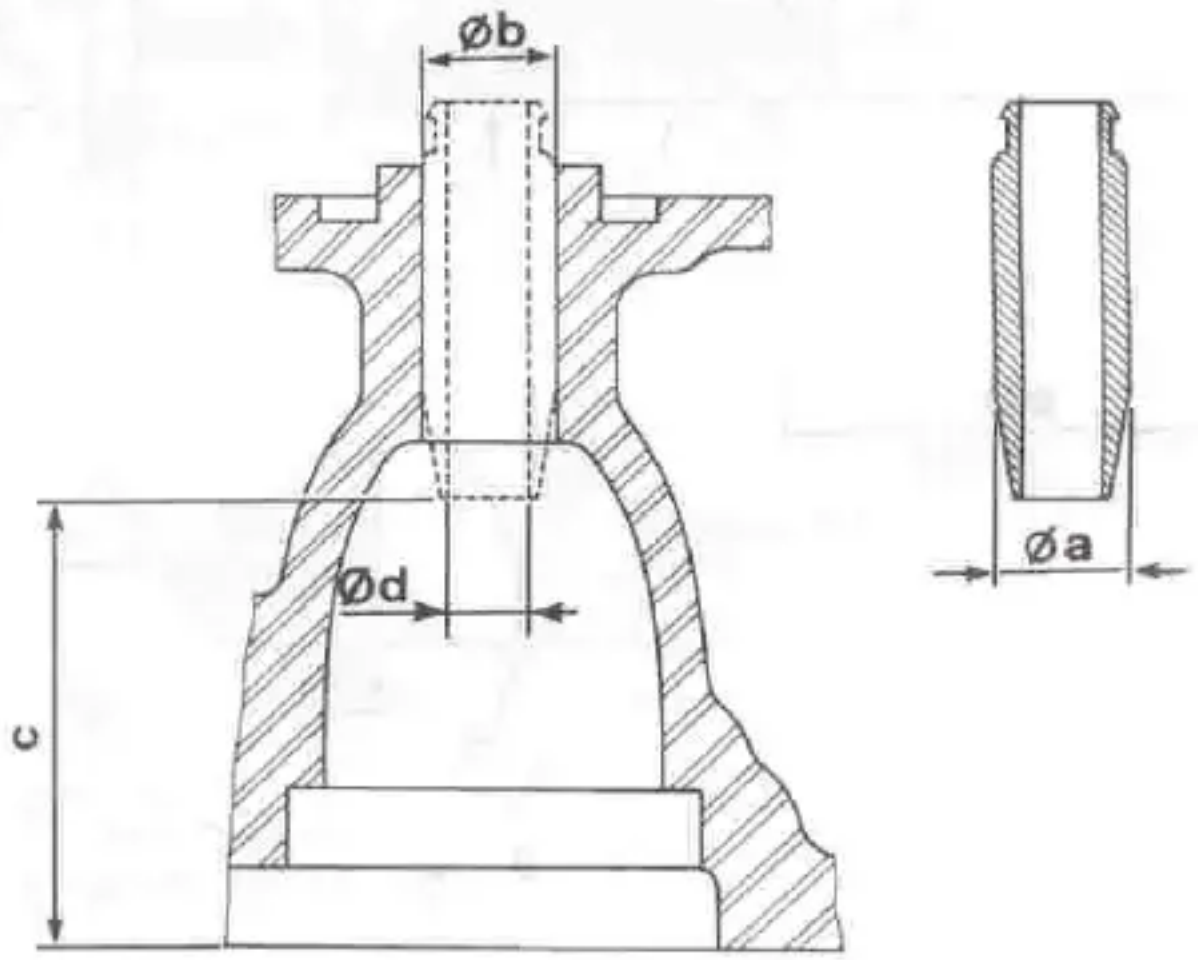
Øb
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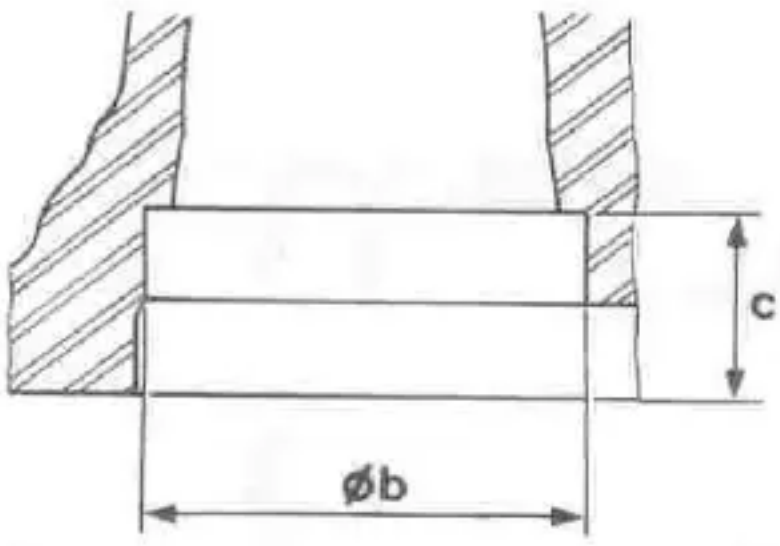
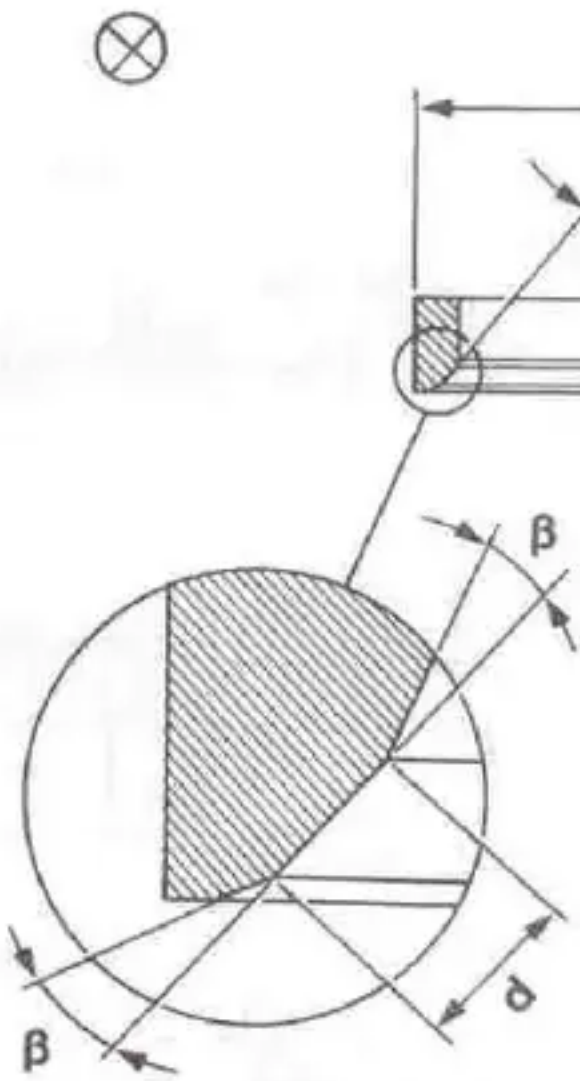
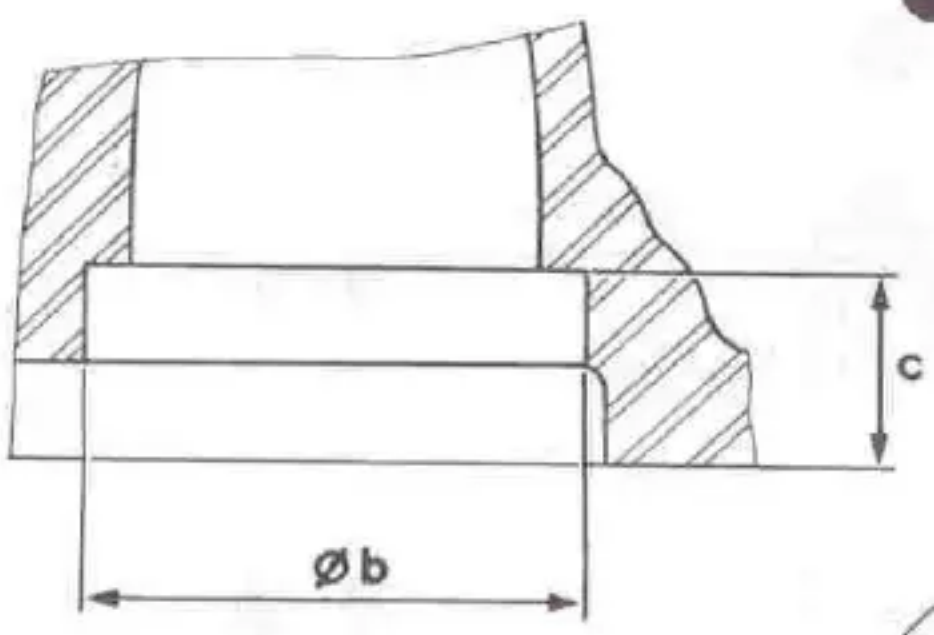
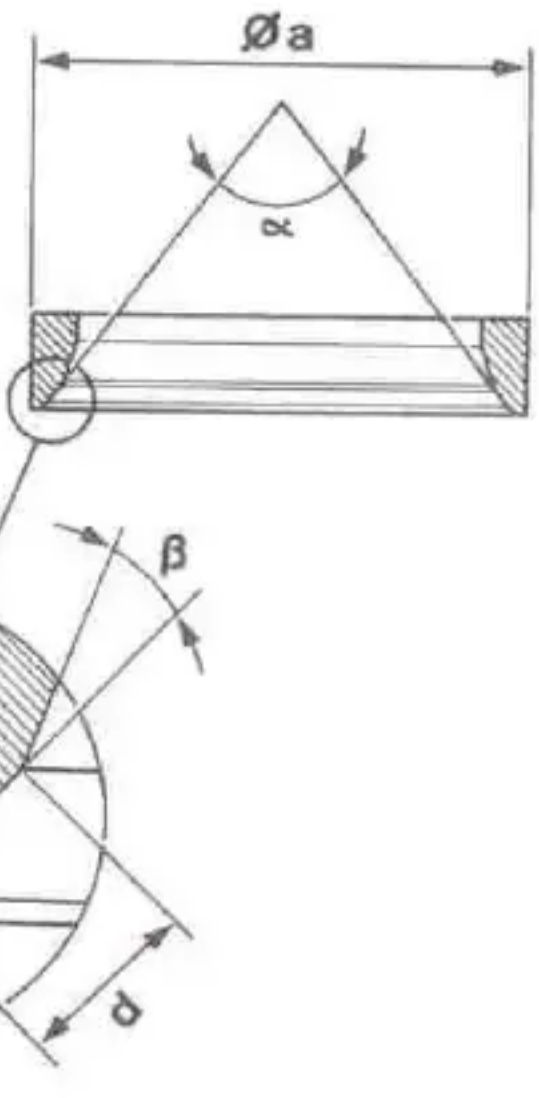








VALVE SEATS

Material : Steel

	⊗		●	
⌀ a ⊢> 0	31,57 or 31,77	+ 0,105 + 0,080	36,373 or 36,573	+ 0,119 + 0,080
⌐¬ 1	31,87		36,673	
⌐¬ 2	32,07		36,873	
⌀ b ⊢> 0	31,50 or 31,70	+ 0,039 0	36,30 or 36,50	+ 0,039 0
⌐¬ 1	31,80		36,60	
⌐¬ 2	32		36,80	
c ⊢> 0	15,49 or 15,59	± 0,2	15,74 or 15,84	± 0,2
⌐¬ 1	15,69		15,94	
⌐¬ 2	15,79		16,04	
d	2,2	0 - 0,4	1,50	0 - 0,4
α	90°		90°	
β	15°		15°	

NOTE : When a seat is replaced, machine the inner diameter, if necessary, to line up with the port in the head

PISTONS

- (a) piston grade identification.
- (b) engine type identification :
  - XU9J4 : letter Z
  - XU9J4Z : letter X

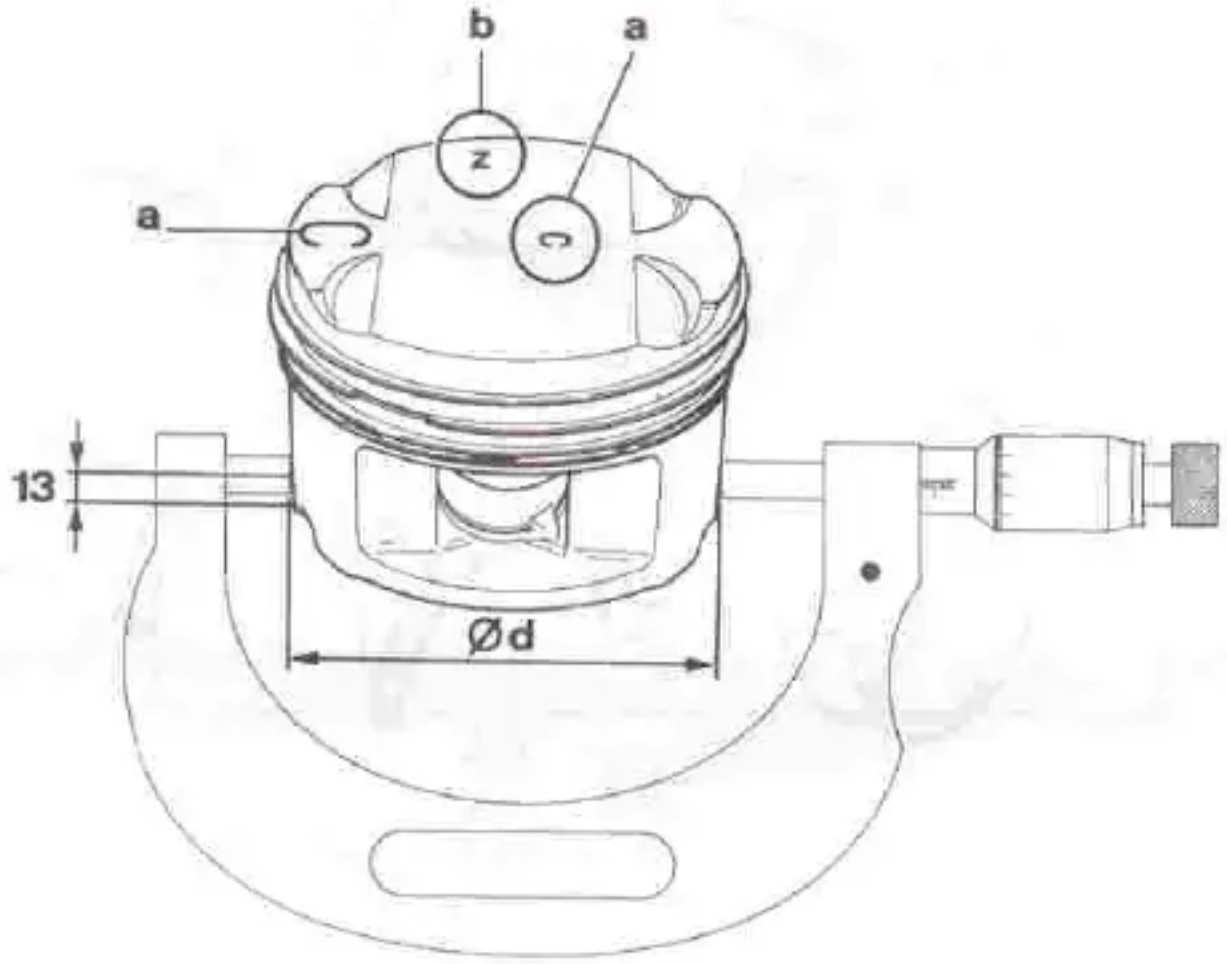
LINERS

- (c) liner grade identification.

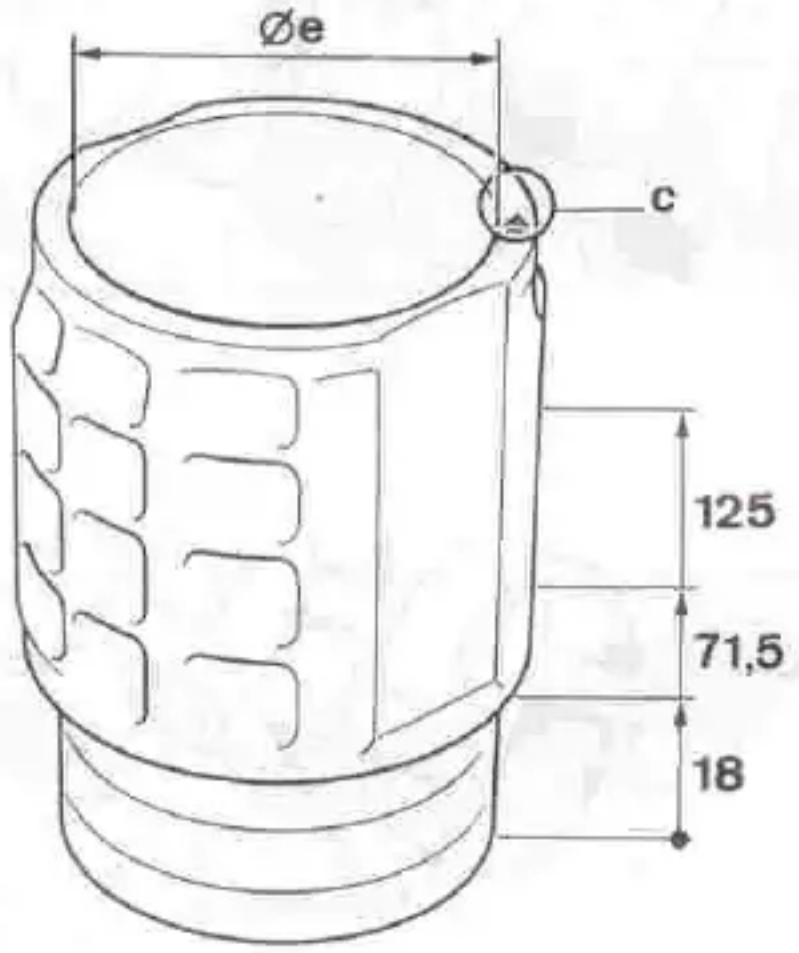
PISTON/LINER MATCHING

The liner bore sizes shown in the table below are the average of three measurements taken at the heights indicated in the illustration opposite

	ø d	ø e
A	82,963 - 82,977	83 - 83,01
B	82,973 - 82,987	83,01 - 83,02
C	82,983 - 82,997	83,02 - 83,03

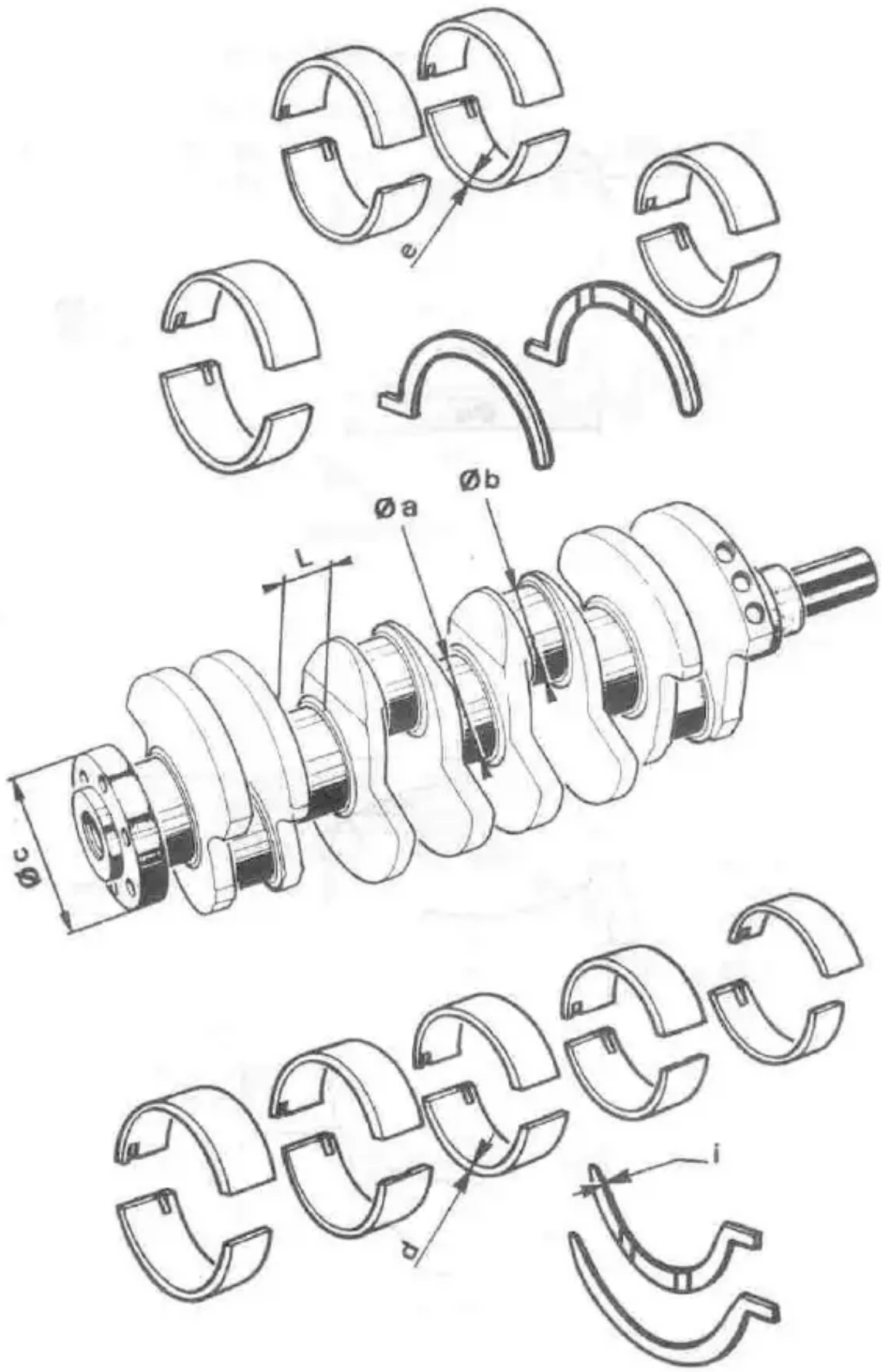


9-5-88 C68



9-5-88 C70

XU9J4	



CRANKSHAFT

End float

- End float is between **0,07 and 0,27 mm.**, adjusted by four half shells

	L		i
⊢> 0	26,6 or 26,7	+ 0,05 0	2,33 to 2,38
1	26,8		2,38 to 2,43
2	26,9		2,43 to 2,48
3	27		2,48 to 2,53

Crank journals and main bearing shells

	ø a		d	
⊢> 0	60	0 - 0,016	1,842	± 0,003
1	59,7		1,992	

Big ends and bearing shells

	ø b		e	
⊢> 0	50	0 - 0,016	1,828	+ 0,15
1	49,7		1,978	

Oil seal contact surface

	ø c	
⊢> 0	90	0 - 0,054
1	89,8	

The main bearing shells ⊢> 0 are identified by green or yellow marking

SPECIAL TOOLS

(-).0132

A1Z - Liner retaining clamp

B - Liner adjustment plate

C - Dial gauge support

(-).0118

- Dial gauge mounting comprising :

EZ - Support rod
FZ - Dial gauge carrier

(-).1504

- Dial gauge with attachment eye

(-).0153

A1 - Universal tool for fitting main bearing seals

A2 - Set of shims 0,15 mm thick

B - Oil seal fitting plugs
K - Oil seal fitting plugs
L - Oil seal fitting plugs

G - Crankshaft setting rod

J - Four bolts 11 x 1,50 mm

M - Two timing gear setting rods

(-).0213

- Clutch plate centralising mandrel

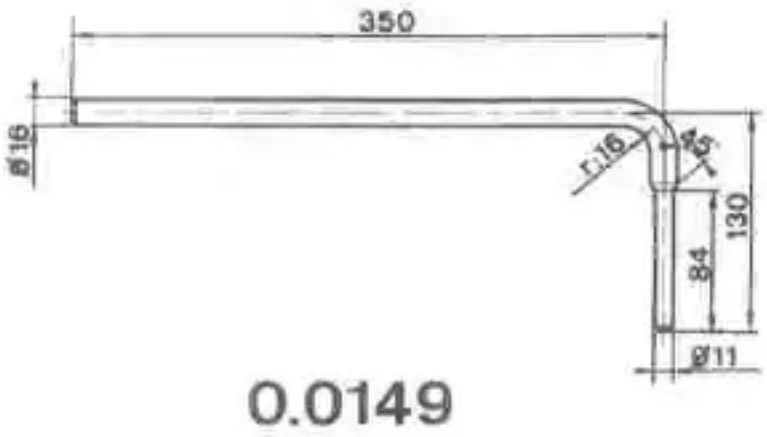
SEEM.C.TRONIC 87

- Equipment for measuring belt tension

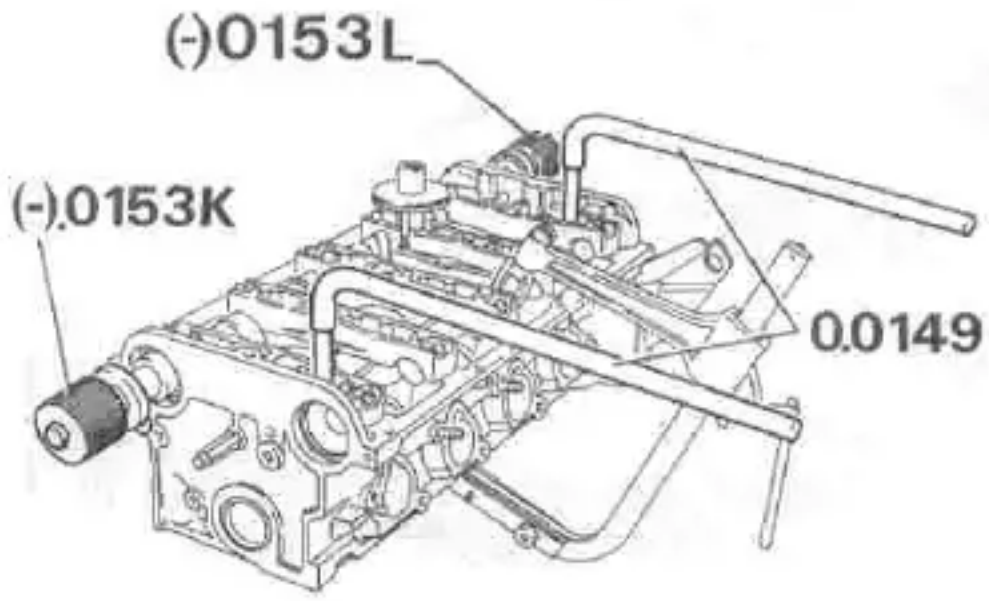
TOOLS TO BE MADE LOCALLY

0.0149

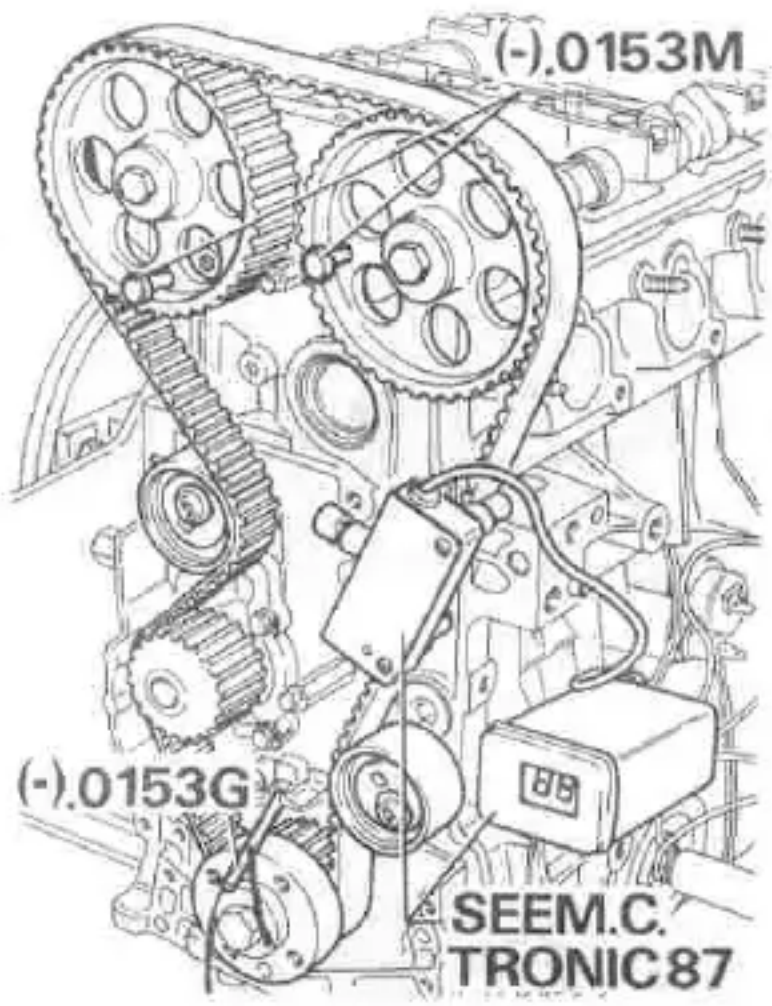
- Cylinder head releasing lever



0.0149



20-5-88 C3



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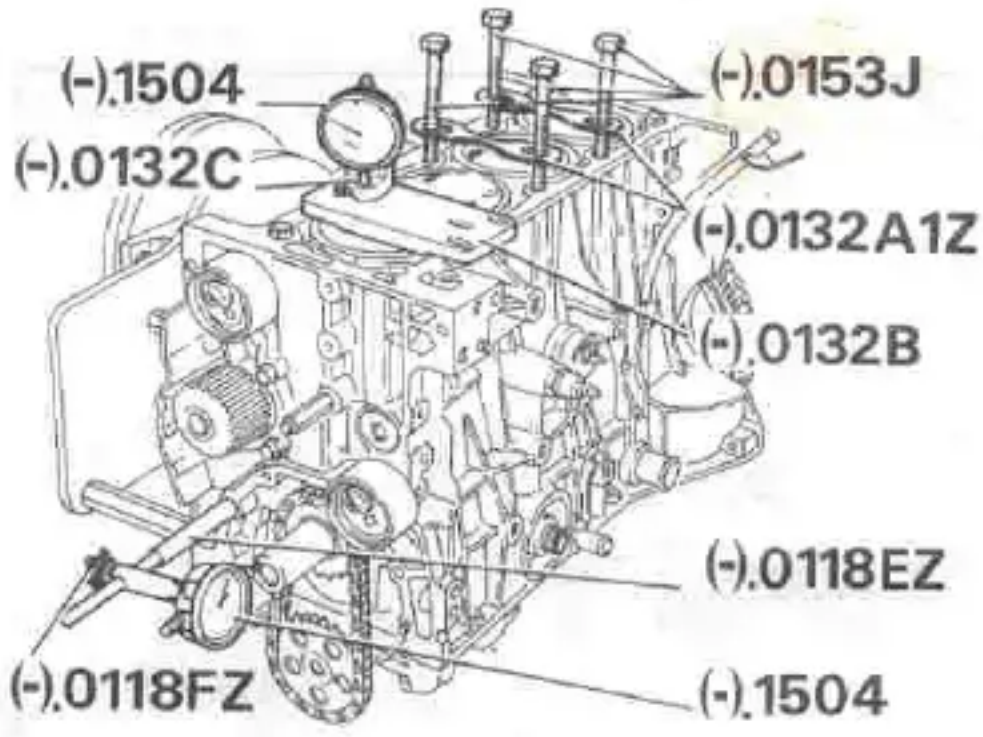
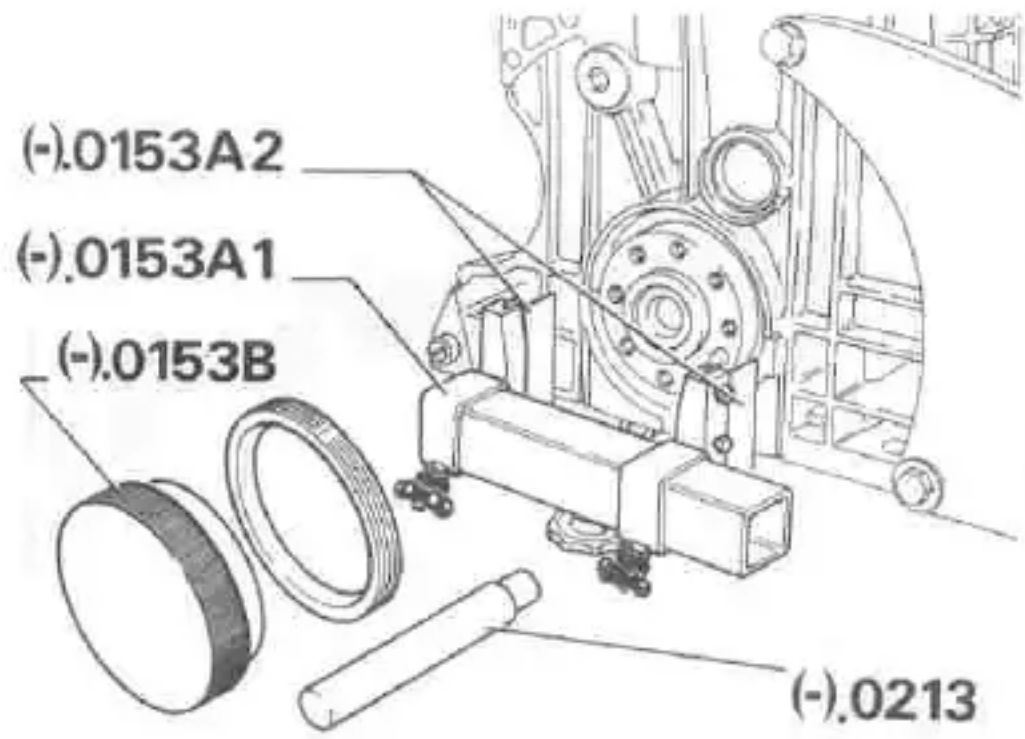


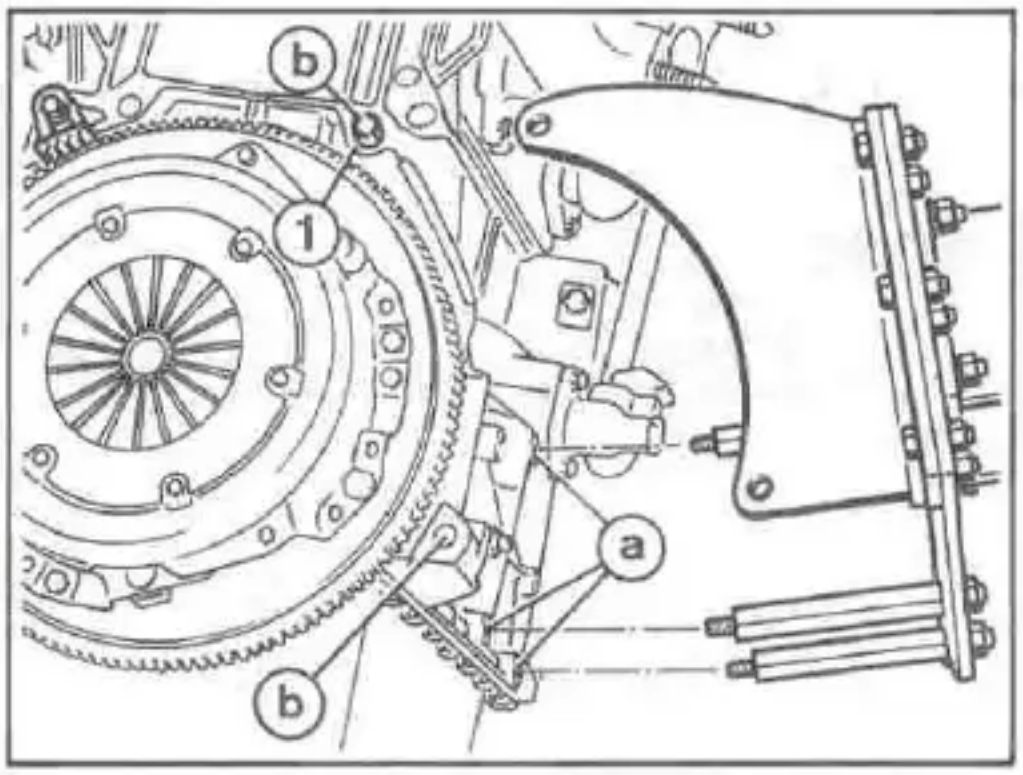
20-5-88 C6



20-5-88 C7

XU9J4	

I



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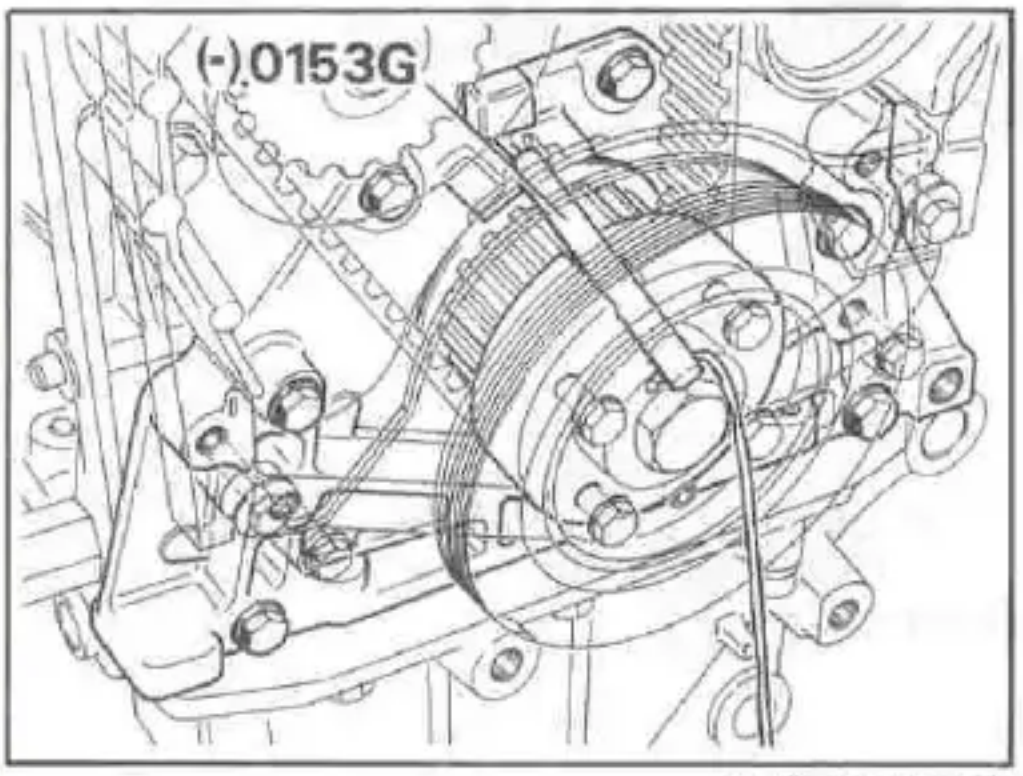
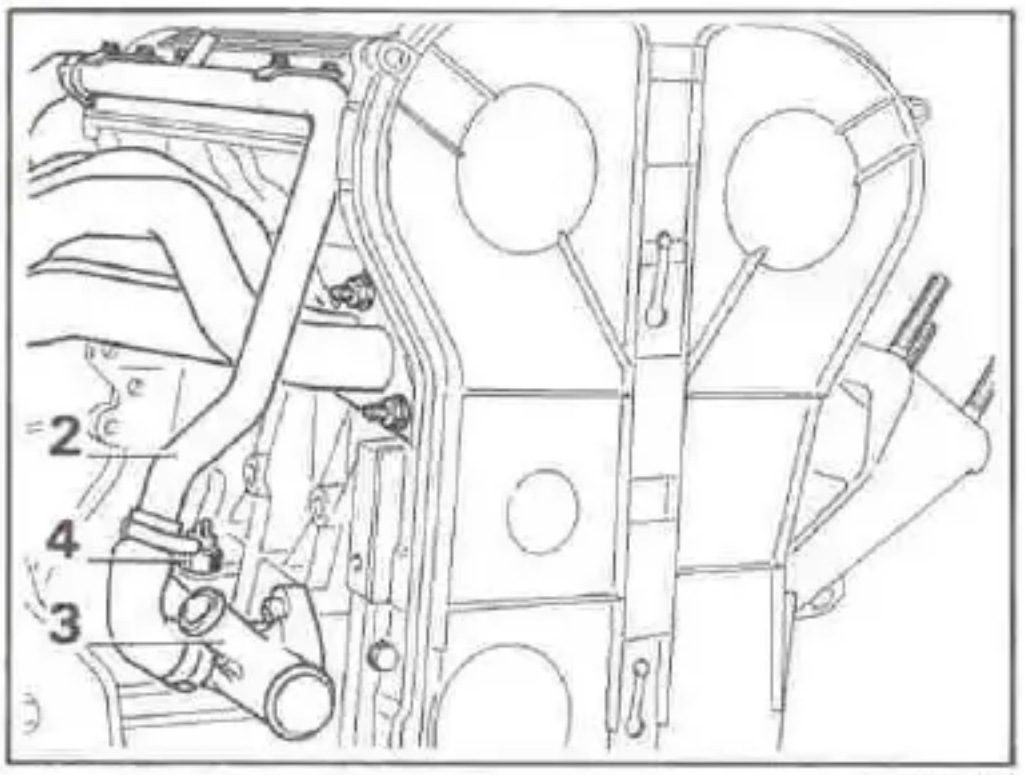


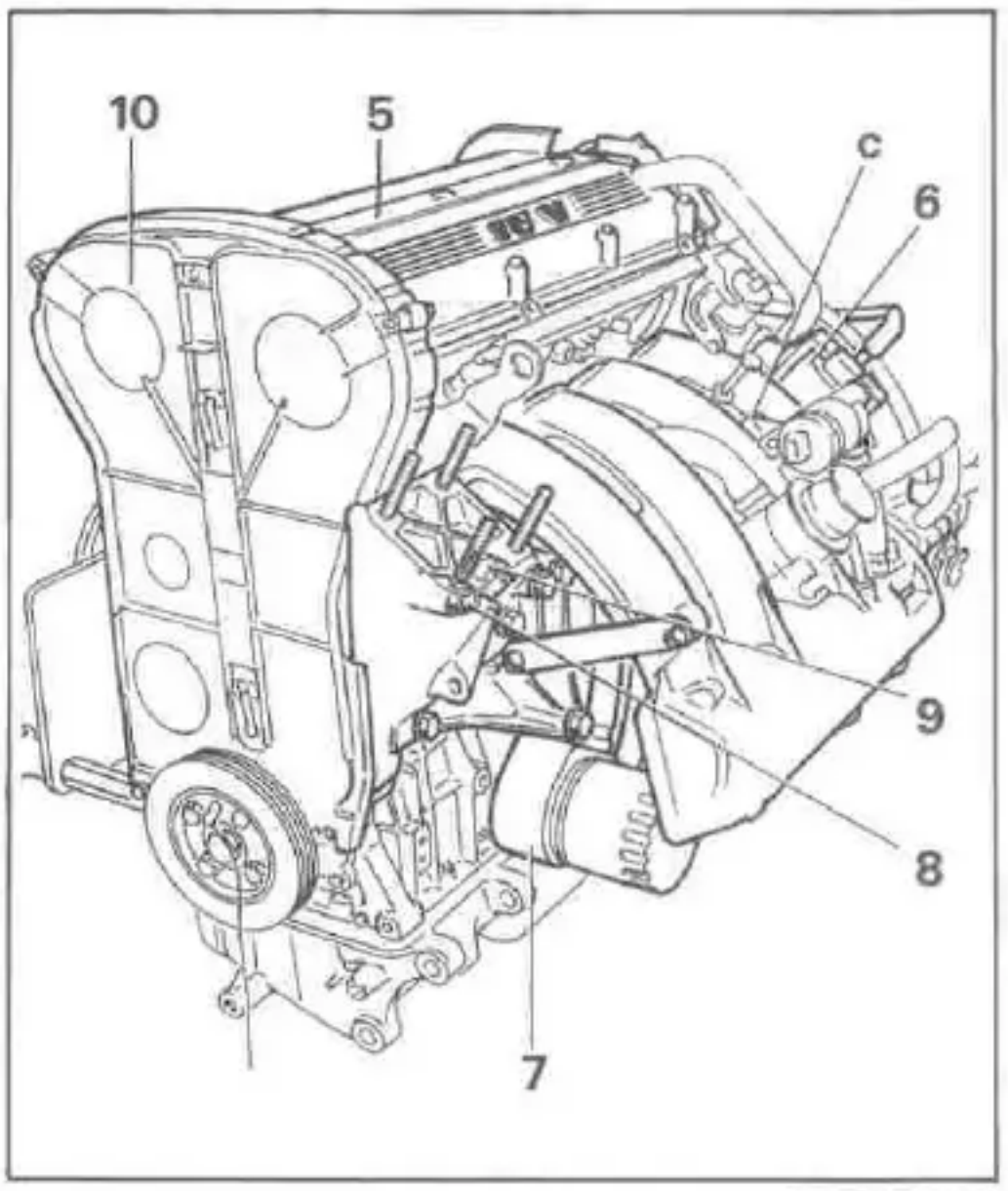
9-5-88 C30-C31-C36

III



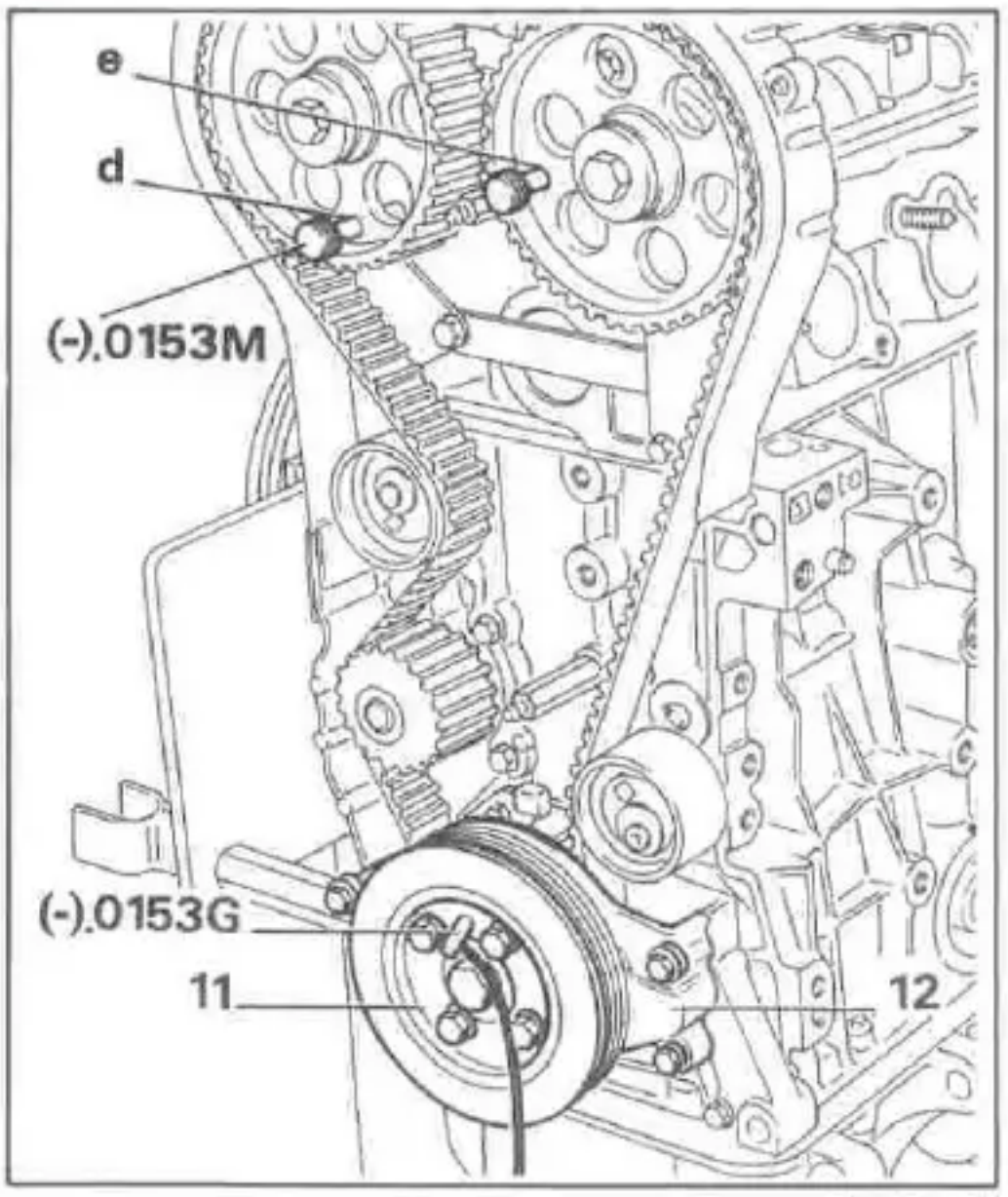
9-5-88 C89

IV



9-5-88 C34-C36

V



9-5-88 C41

I

- Remove the centralising dowel (1)

- Attach the engine to the DESVIL stand (reference 175/3) at (a) and (b)

II

- Position the flywheel with rod (-).0153 G

- Lock the flywheel with a tool of FACOM D86 type (fig. I)

III

- Remove :
  - the pipe (2) and the coolant inlet union (3)
  - the exhaust manifold and gaskets
  - the oil level sensor (4)

IV

- Remove :
  - the strip (5)
  - the ignition harness
  - the cylinder head cover
  - the alternator
  - the ignition coil (6)
  - the dipstick tube fixing at (c)
  - the inlet manifold and its gaskets
  - the intermediate engine mounting
  - the oil filter cartridge and the cooler (7)
  - the pressure switch (8) and the oil pressure sensor (9)
  - the timing cover (10)

V

- Remove :
  - the rod (-).0153 G
  - the pulley (11)
  - the lower timing cover (12)

- Position the camshaft gears with rods (-).0153 M at (d) and (e)

XU9J4	DISMANTLING

I

TIMING BELT REMOVAL

- Slacken the bolts **(1)** and **(2)**

- Remove :
  - the toothed belt
  - the bolt **(3)** and its washer
  - the gear **(4)** and its key
  - the oil pipe **(5)**

II

- Release the bolts **(6)**

NOTE

Lock the camshaft with an open-ended spanner at **(a)** (fig. III)

- Remove :
  - the rods **(-).0153 M**
  - the camshaft gears and their keys
  - the cover **(7)**
  - the coolant pump **(8)**
  - the tensioning rollers
  - the oil pump gear spacer **(9)**

IV

- Remove :
  - the bolt **(10)**

NOTE : Lock the camshaft with an open-ended spanner at **(a)**

  - the pulley **(11)**
  - the half cover **(12)**

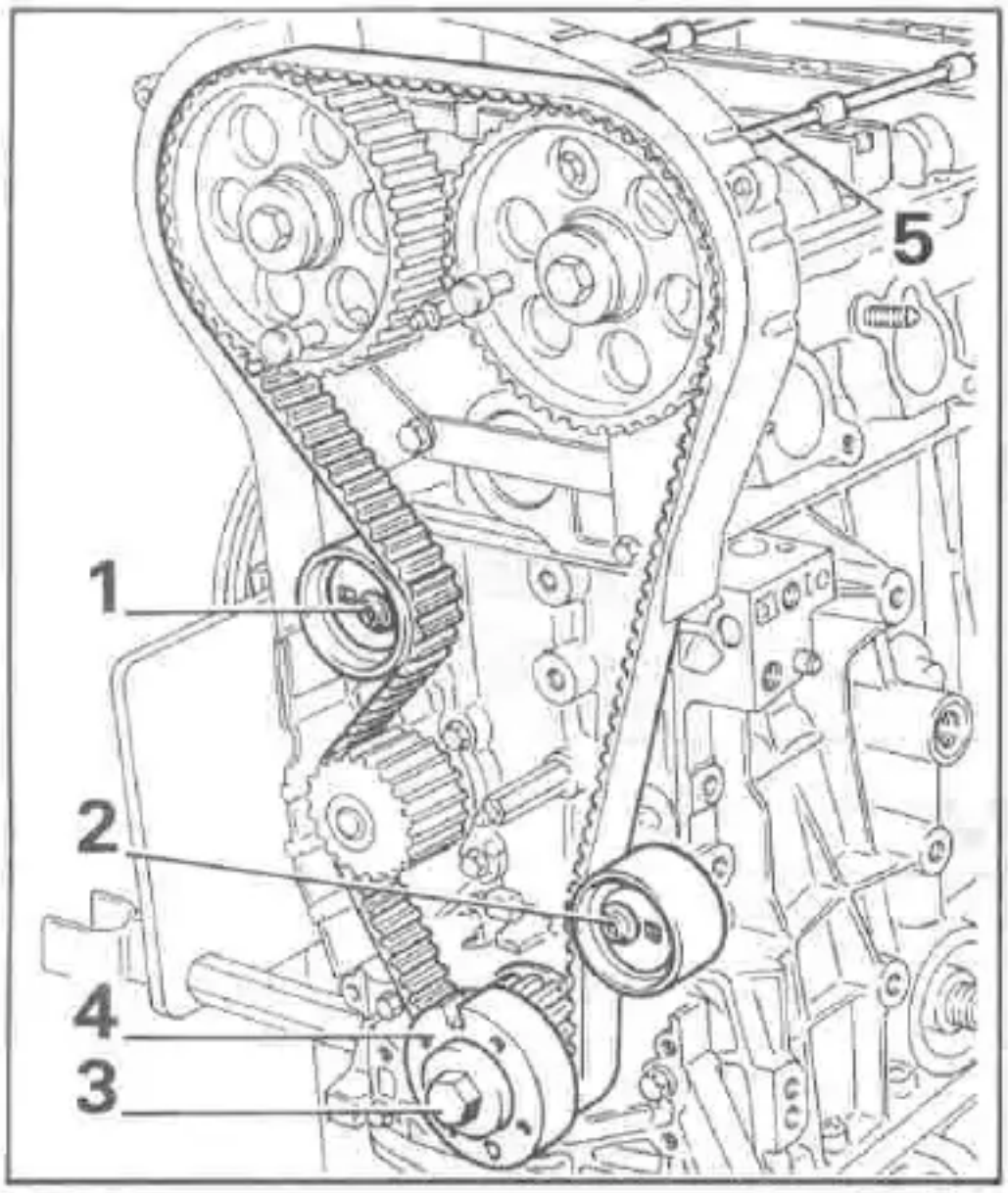
IV

- Remove :
  - the distributor cap **(13)**
  - the rotor **(14)**
  - the bolt **(15)**
  - the rotor support **(16)**
  - the sealing plate **(17)**

V

- Remove :
  - the thermostat housing cover **(18)**
  - the thermostat **(19)**
  - the thermostat housing **(20)**

I



9-5-88 C23

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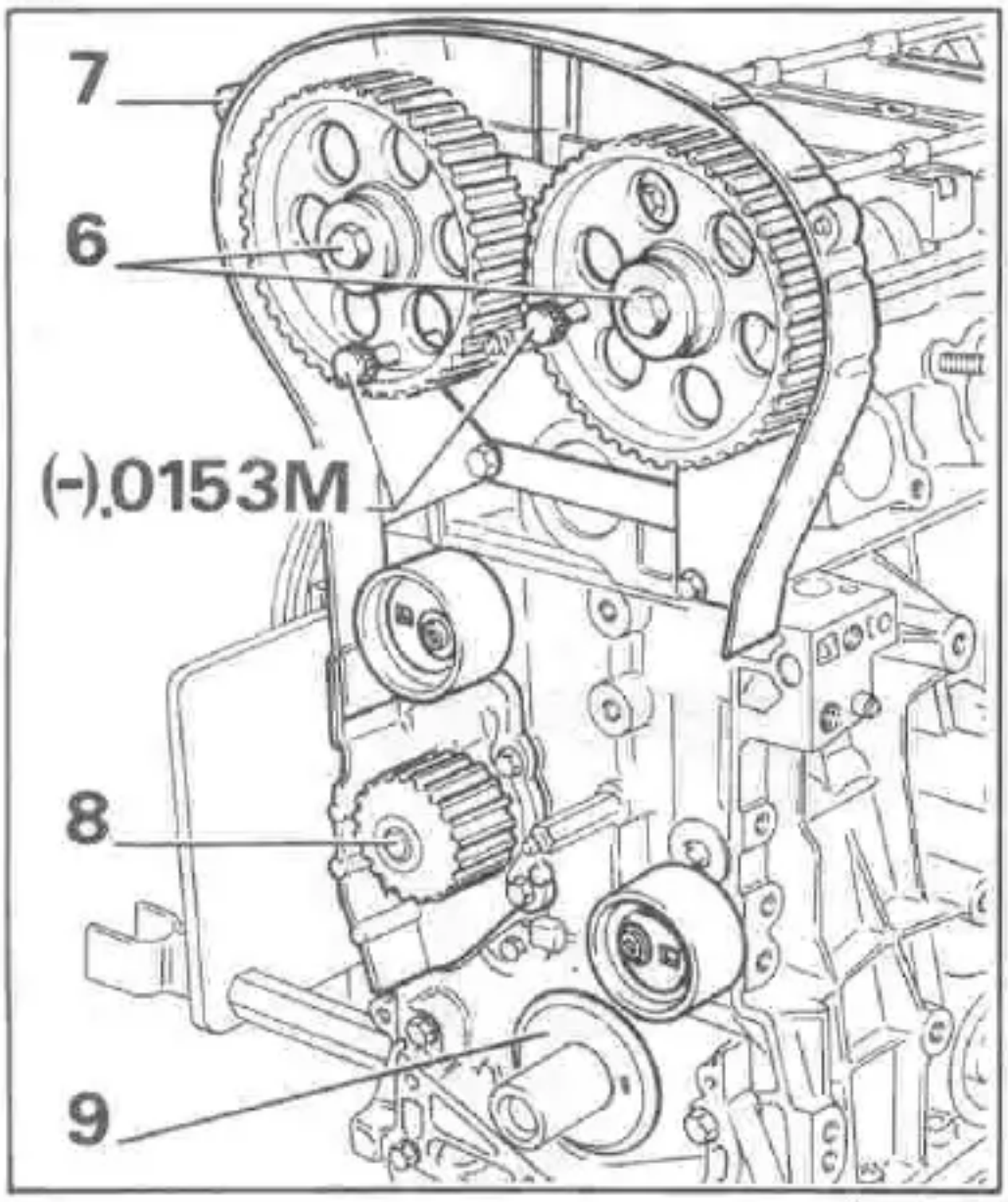

9-5-88 C25

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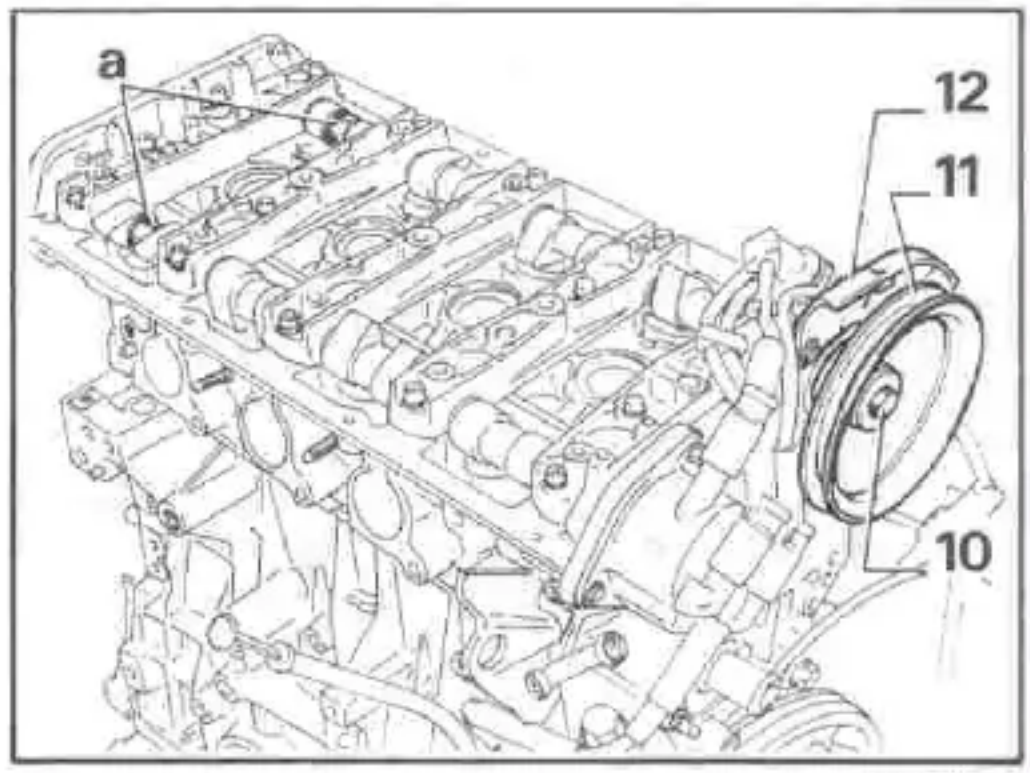

9-5-88 C40

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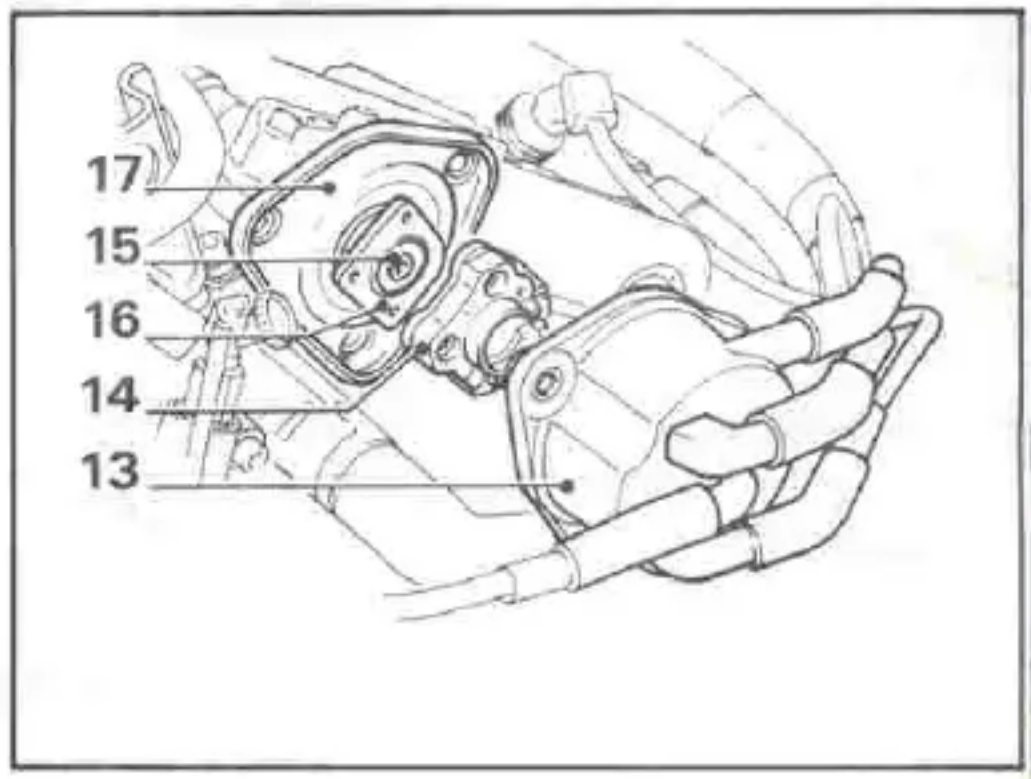

V

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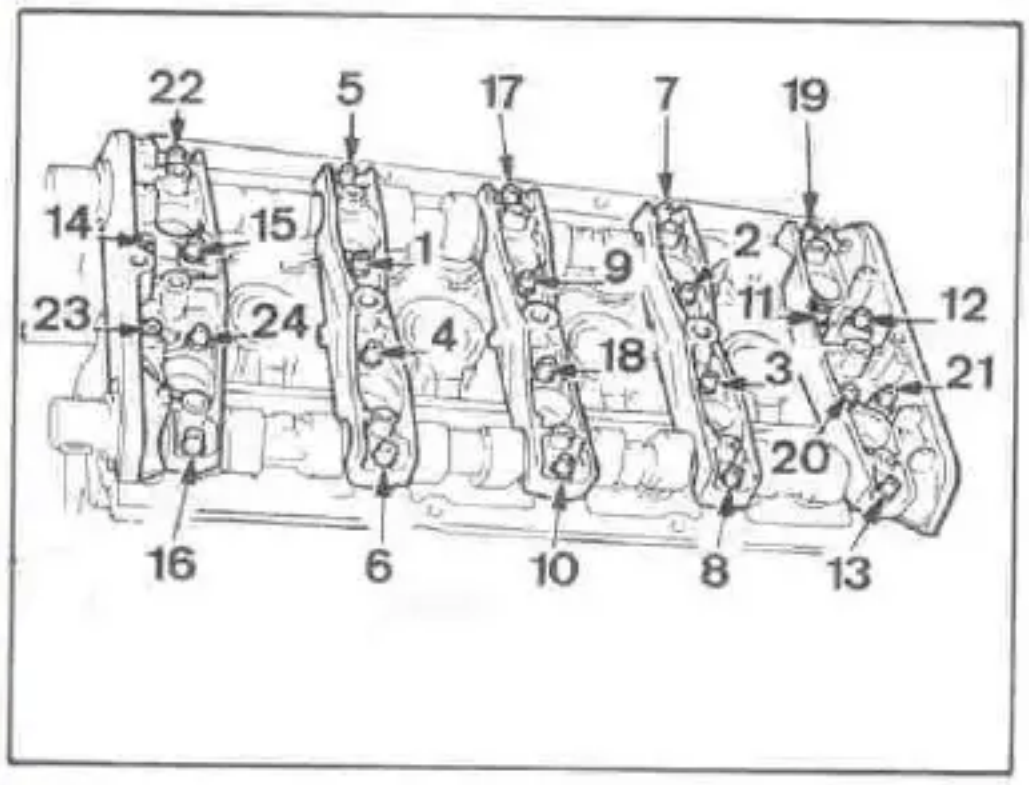
XU9J4

I



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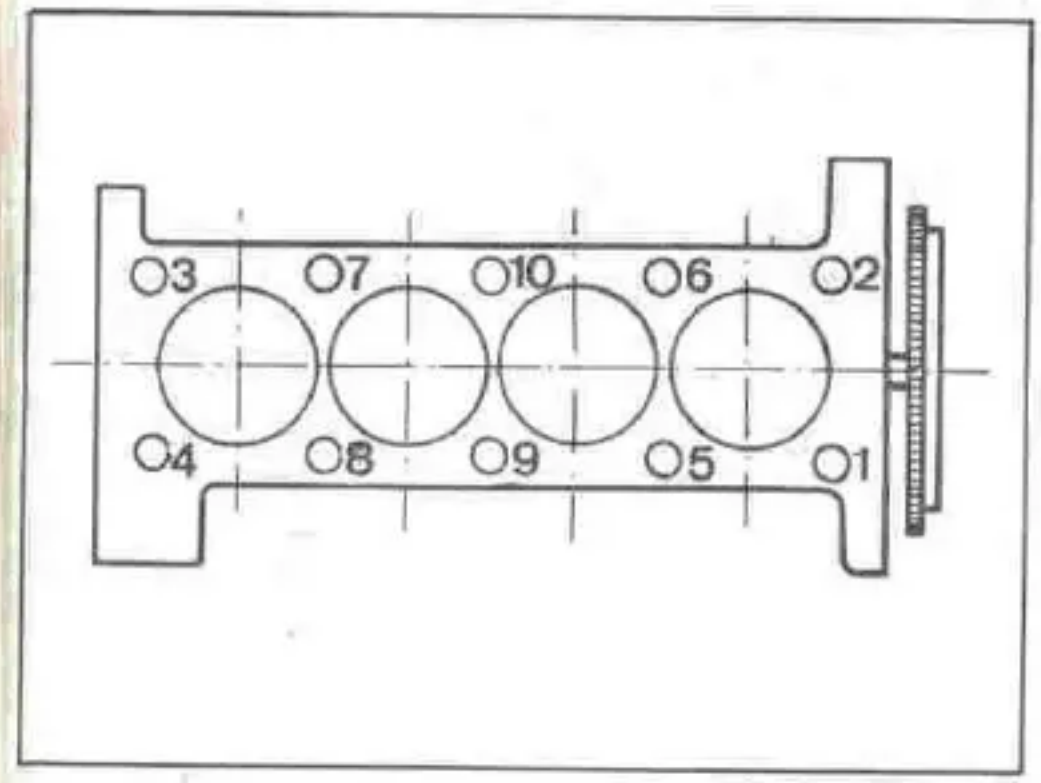

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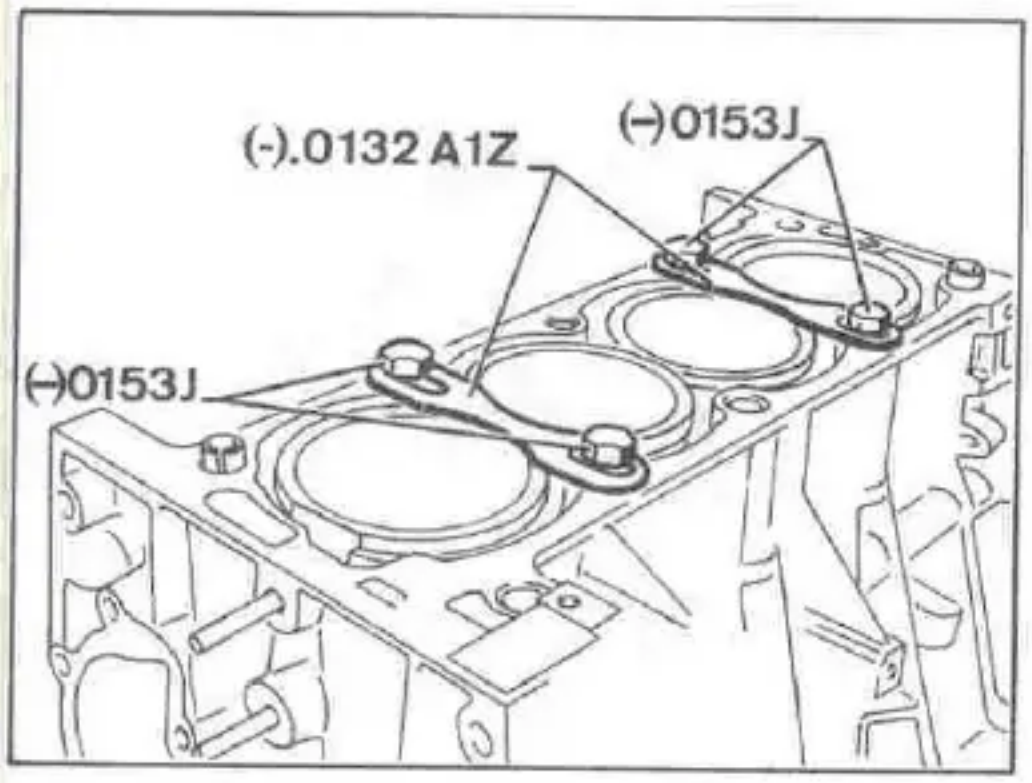

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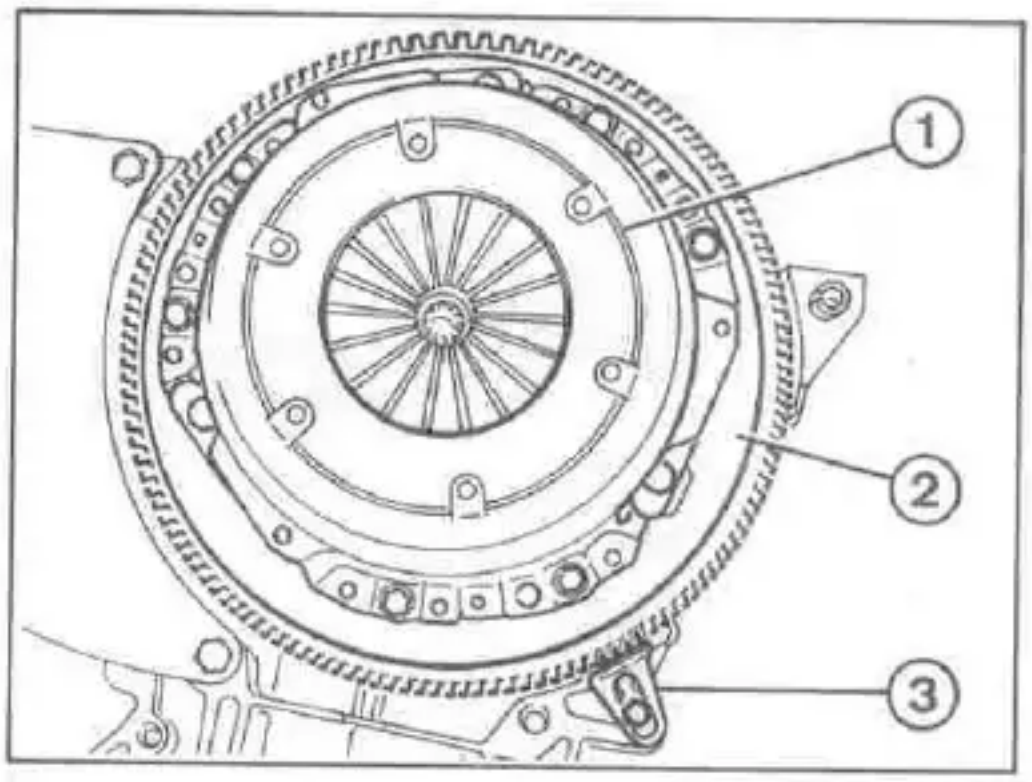

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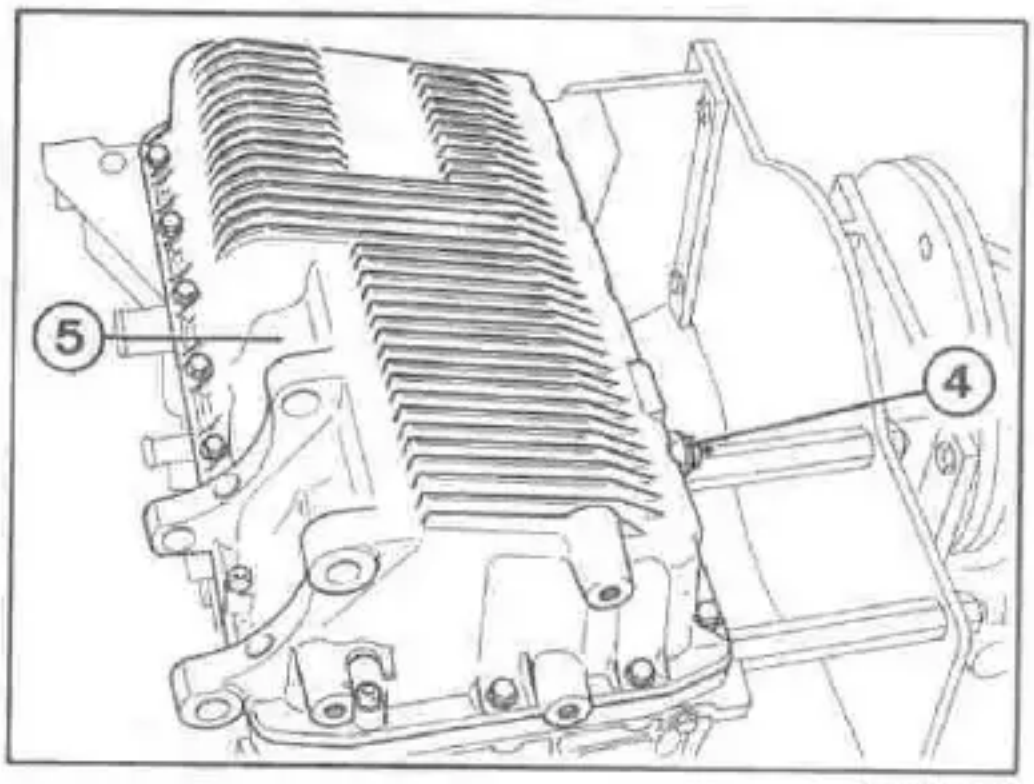

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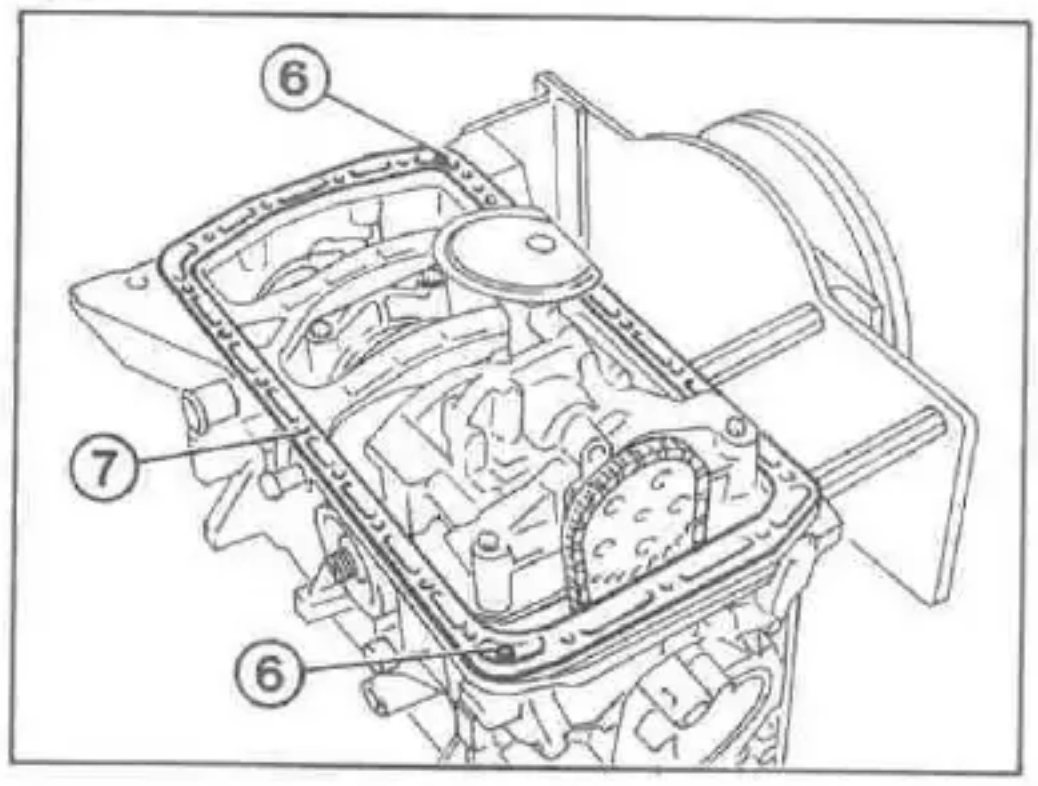
VI



DISMANTLING	XU9J4

I

- Progressively uncrew in the order shown the camshaft bearing cap bolts

- Remove :

  - bearing caps no.**4** and **2** then **3-1** and **5**

  - the oil seals

  - the camshafts

II

- Progressively unscrew in the order shown the cylinder head bolts

- Retrieve the distance pieces under the bolt heads

- Using levers **0.0149** (see tooling page), rock the cylinder head to release it

- Remove the cylinder head and gasket

III

- Fit the liner retaining clamps **(-).0132 A1Z** using bolts **(-).0153 J**

IV

- Remove :

  - the clutch mechanism and plate **(1)**

  - the flywheel **(2)**

  - the flywheel locking tool **(3)**

V

- Remove :

  - the oil temperature sensor **(4)**

  - the sump **(5)**

VI

- Remove :

  - the two bolts **(6)**

  - the spacer **(7)**

XU9J4	DISMANTLING

I

- Remove :
  - the oil seal carrier plate (1)
  - the bolts (2), (3) and (4)

WARNING

The bolt (2) serves to centralise the pump (5)

II

- Remove :
  - the shim (6)
  - the assembly of pump (5), drive chain and sprocket (7)

III

- Remove :
  - the big end nuts
  - the main bearing bolts
  - the two centre main bearing nuts (8)
  - the two side bolts (9)
  - the big end caps
  - the main bearing caps
  - the thrust haft washers from no. 2 main bearing cap

IV

IMPORTANT

Mark the bearing shells with their positions

- Withdraw :
  - the oil seal (10)
  - the crankshaft
  - the main bearing shells
  - the thrust half washers (11)

V

- Remove :
  - the piston lubrication pipes (12)
  - the liner retaining clamps (-).0132 A1Z
  - the piston-liner assemblies

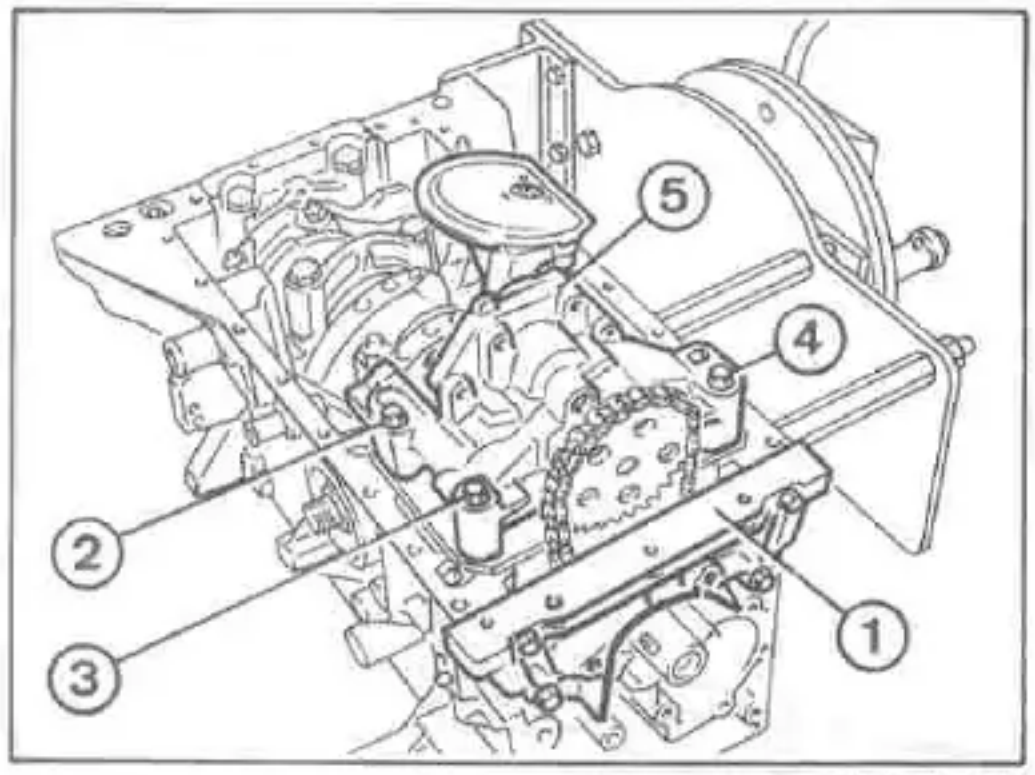
NOTE

If the liners are to be re-used, mark their positions in the block

VI

- Remove :
  - the gudgeon pin circlips
  - the gudgeon pins

I



22-12-86 C38

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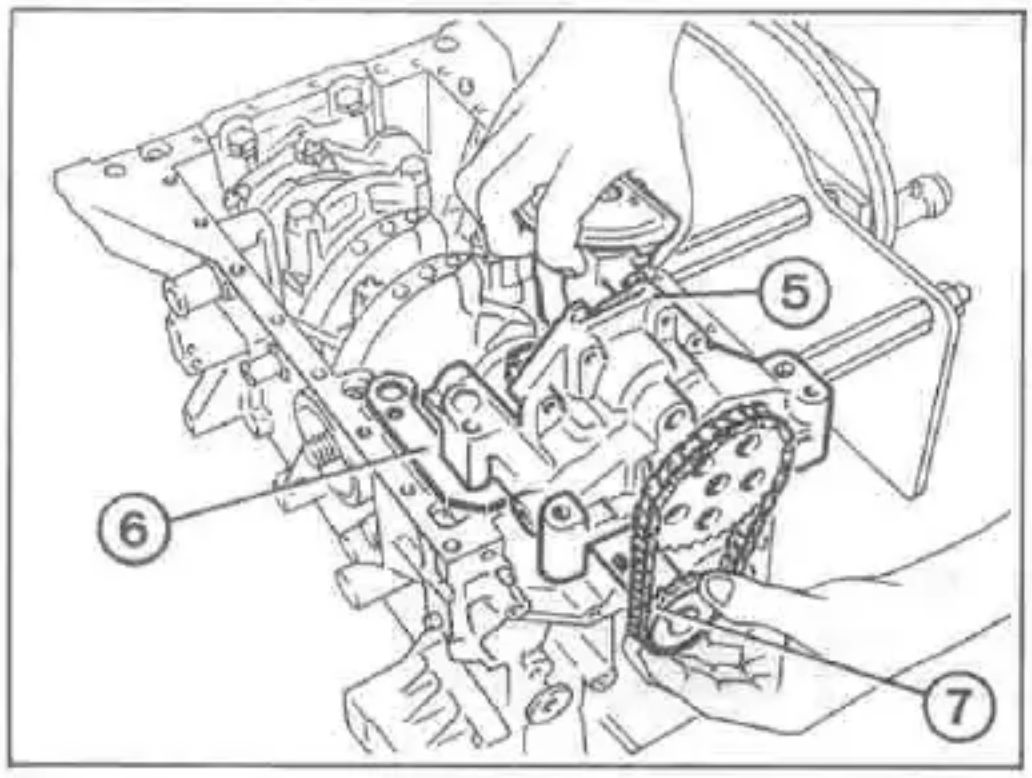
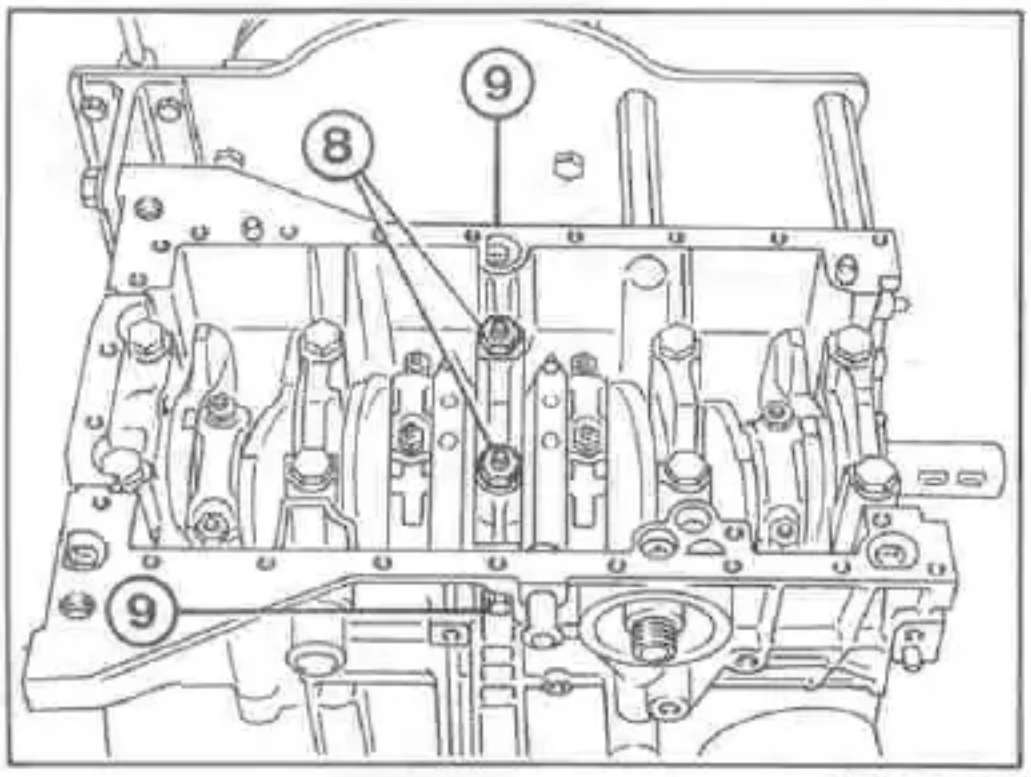


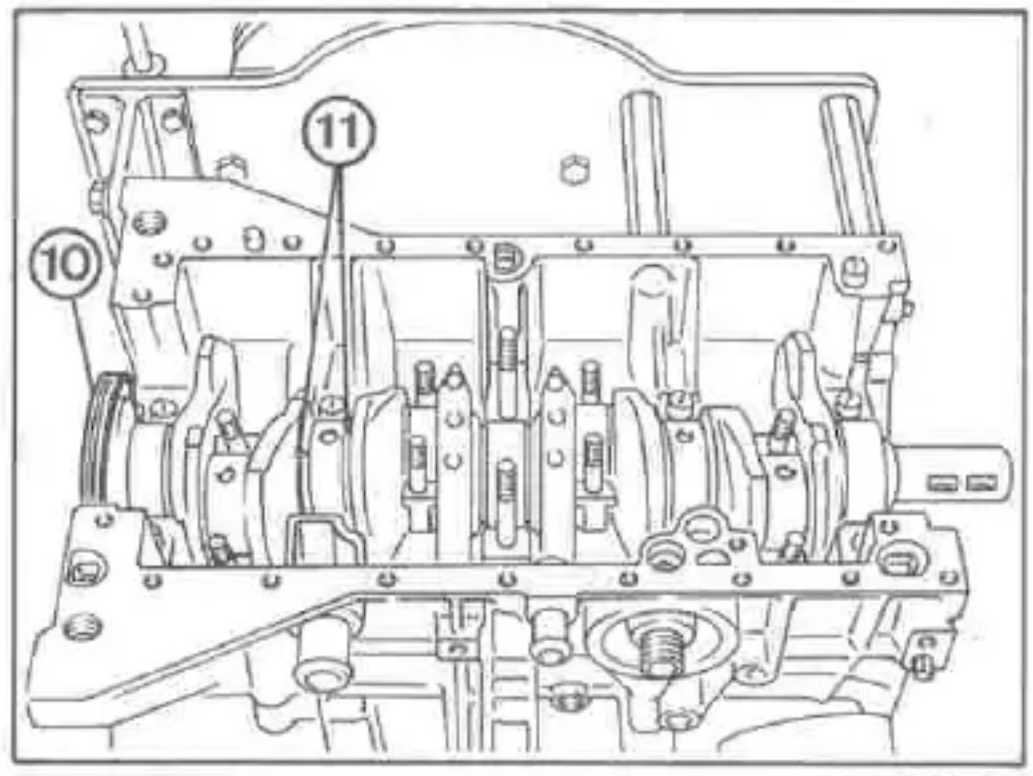
22-12-86 C42

III



22-12-86 C46

IV



22-12-86 C47

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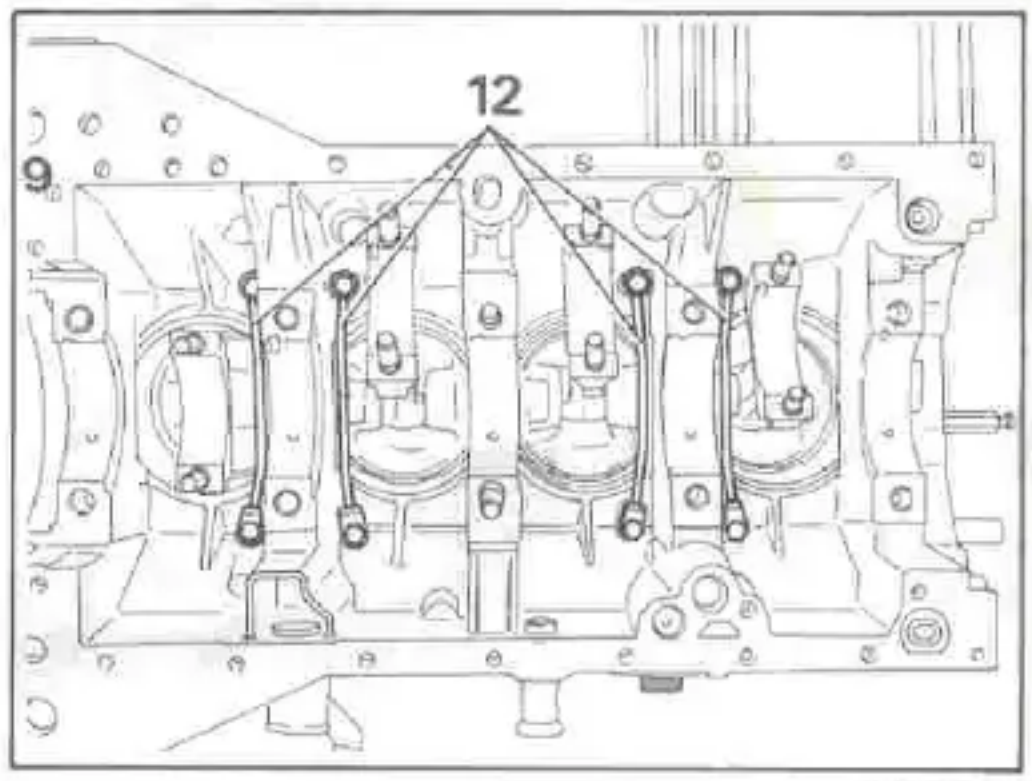

9-5-88 C54

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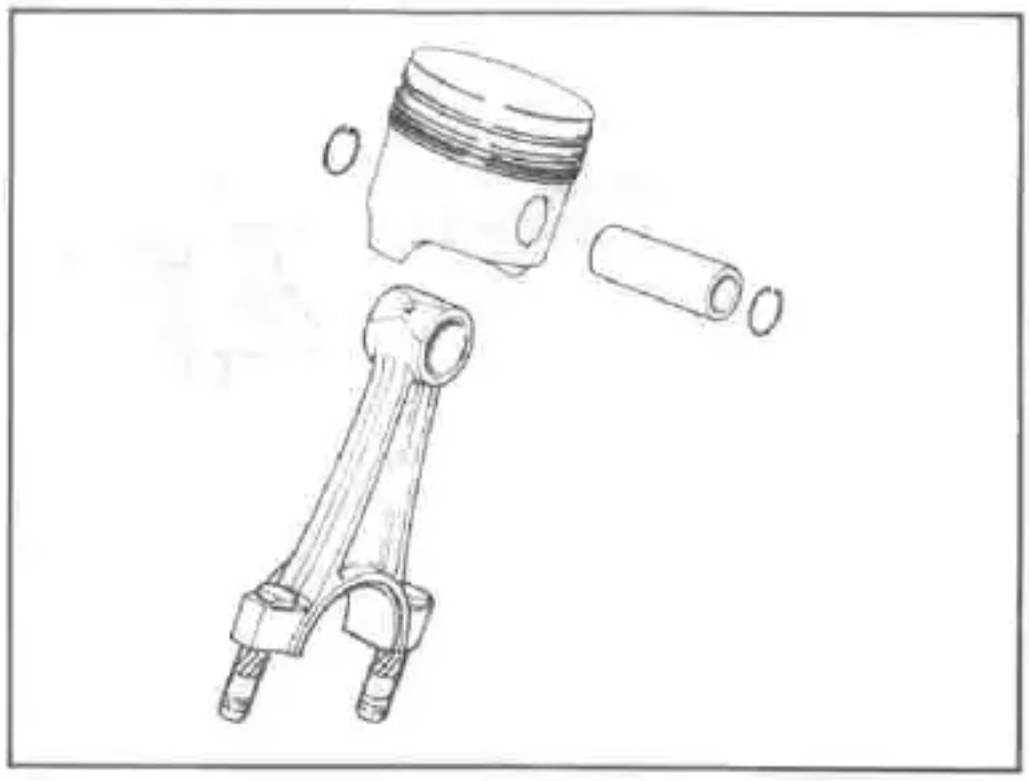
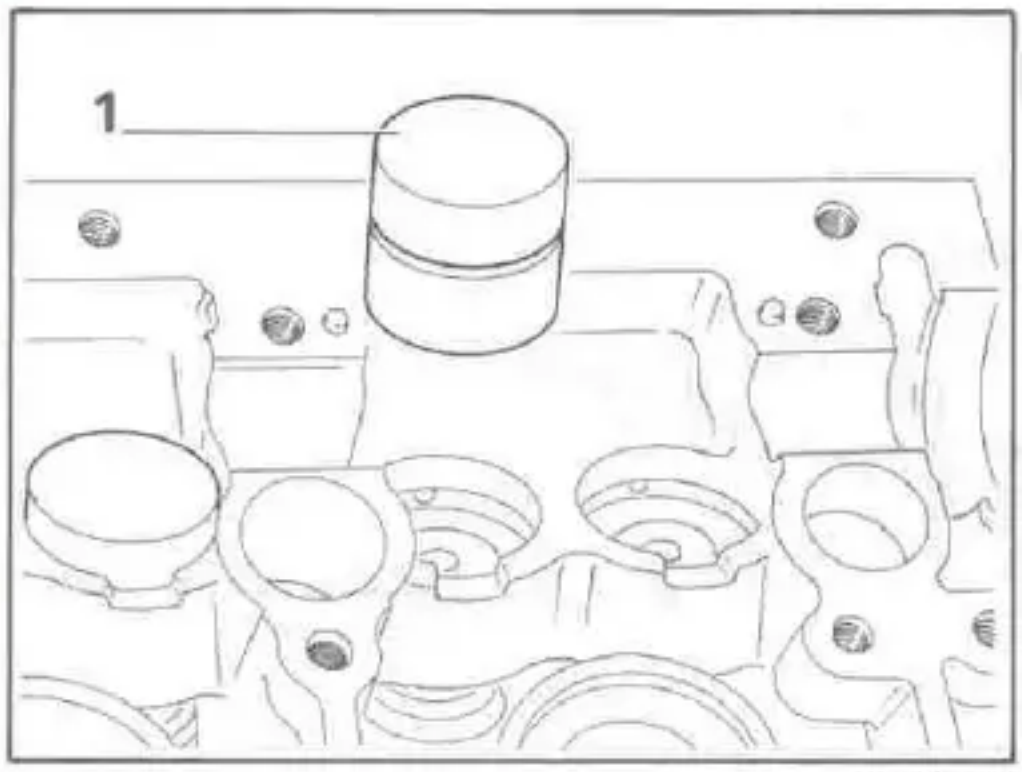


XU9J4	

I



9-5-88 C45

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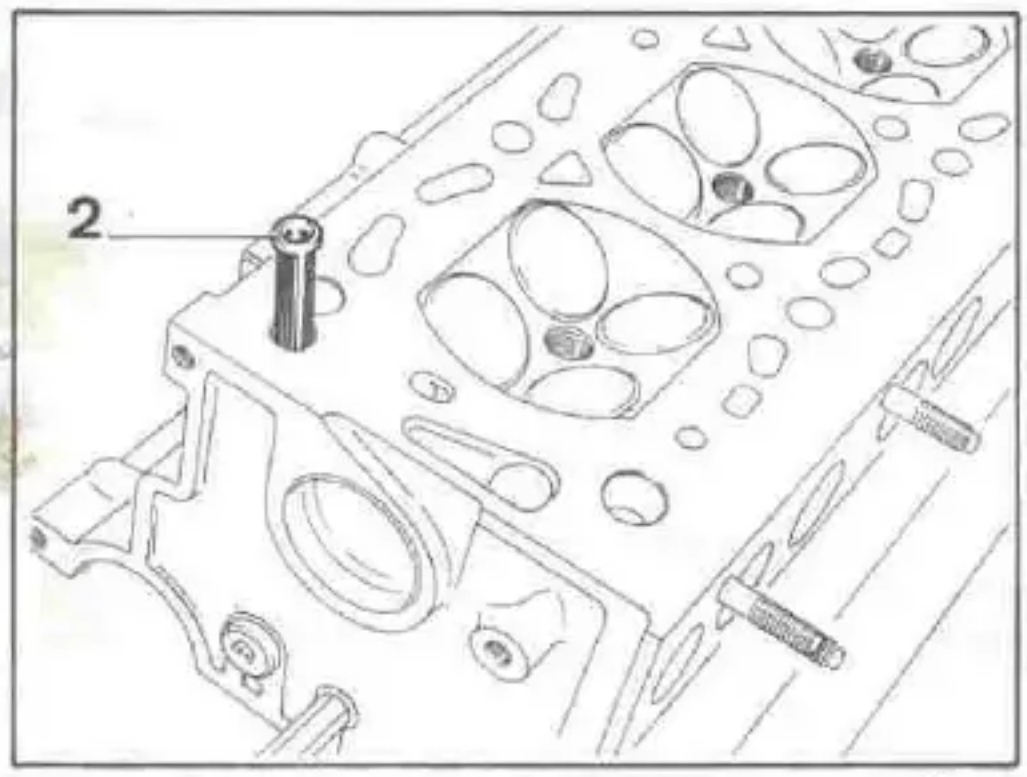

9-5-88 C73

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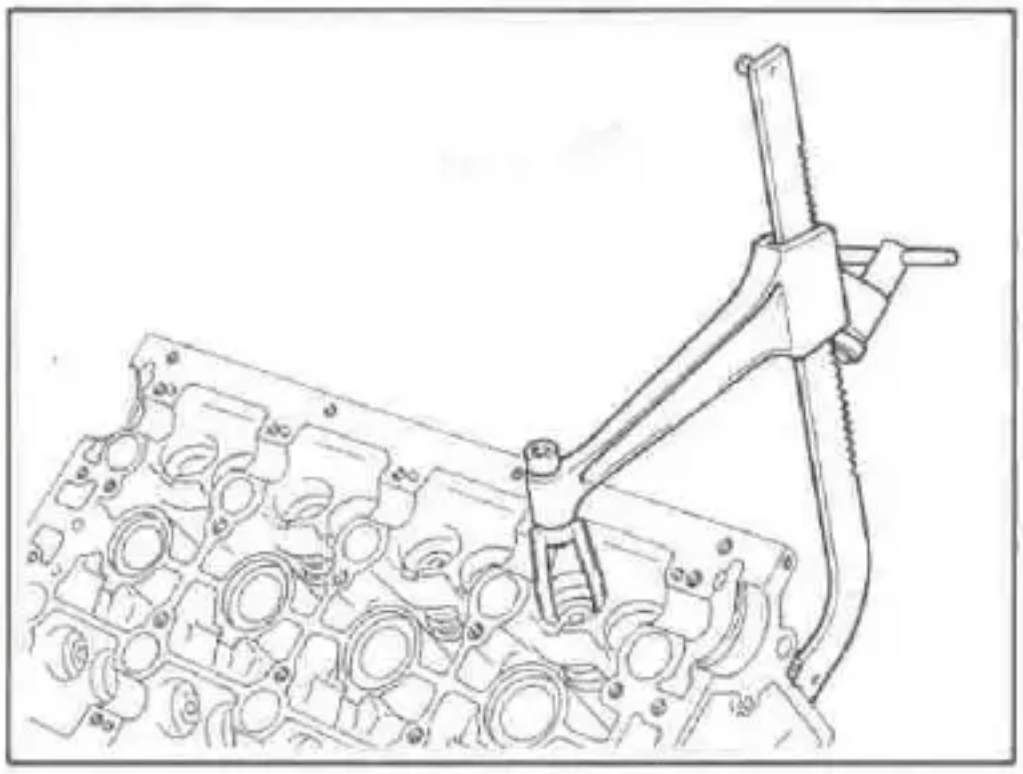

9-5-88 C49

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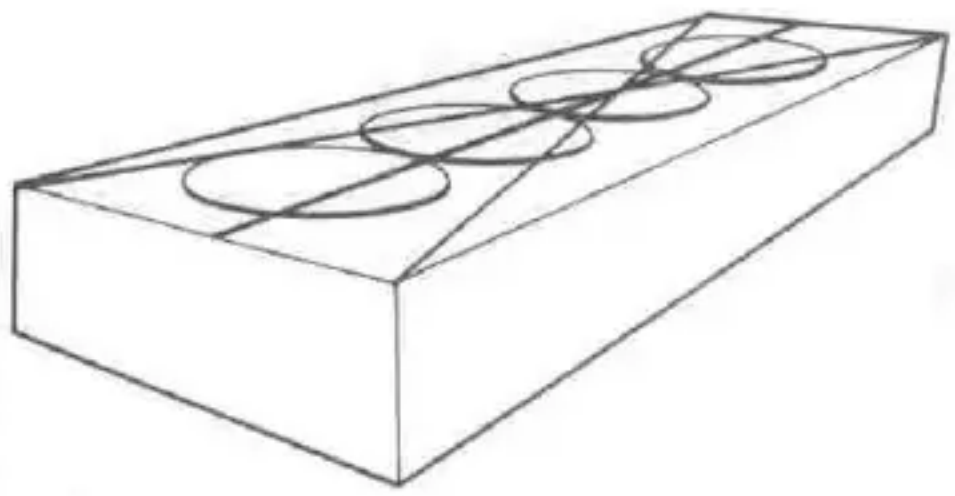
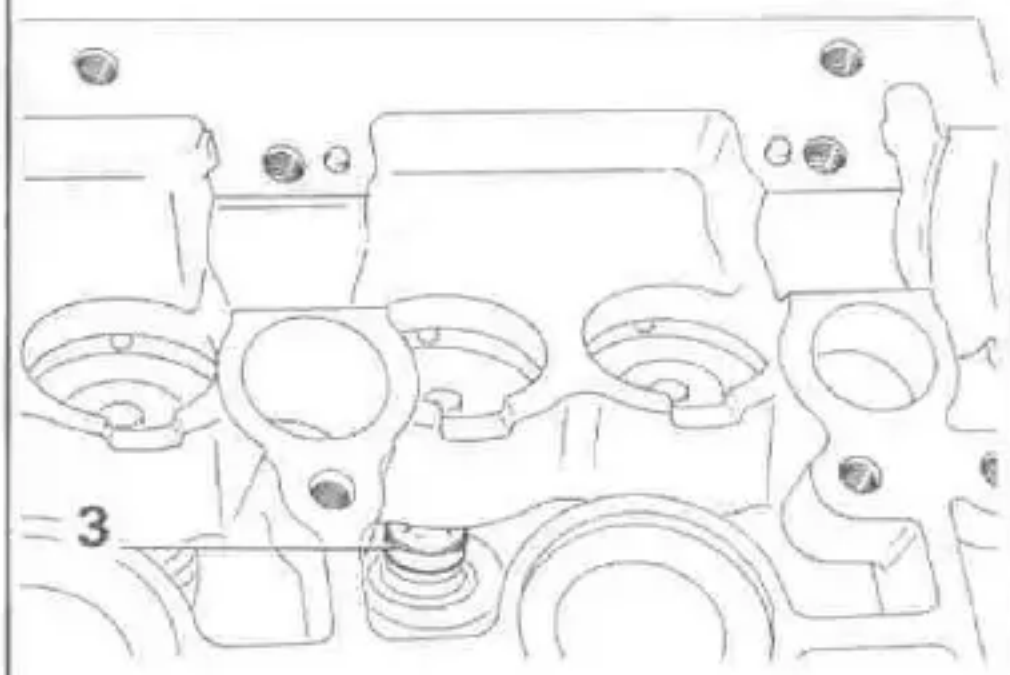




9-5-88 C48

I

CYLINDER HEAD

- Remove :
  - the spark plugs
  - the hydraulic tappets (1) marking their positions

II

- Using a small screwdriver, remove the filter (2)

III

- Remove :
  - the valve springs, using a universal lifter of FACOM U13L type
  - the valves
  - the washers from the spring seats
  - the valve stem seals

IMPORTANT

Take care not to scratch the tappet bores with the tool

IV

NOTE

To clean the joint faces, use DECAPLOC 82 varnish remover

- Check for bow :
  - maximum permissible bow : **0,05 mm**

- Check the condition of :
  - the valve seats
  - the valve guides
  - the valves
  - the valves springs
  - the camshafts (journals, cams)
  - the camshaft bearings
  - the various tappings

IMPORTANT

For checking, rectifying or replacing these parts, see identification page

- lap in the valves

- fit new valve stem seals (3) using tool **(-).0132 W**

XU9J4	RE-ASSEMBLY

I

CYLINDER HEAD

- Refit the valves

- Insert a new filter **(1)**

II

- Hydraulic tappets **(2)** :

  - remove the piston assemblies by tapping the tappet on a block of wood

  - depress the ball **(4)** to empty the chamber **(5)**

NOTE

Put oil in the low pressure chamber **(a)**

  - oil the tappets bores

  - fit the assembled tappets **(2)** in their respective bores

III

- Fit the camshafts, positioning the keyways **(6)** and **(7)** at approximately three o'clock

NOTE
The INLET camshaft is identified by a keyway at the distributor end

- Fit nos. **2** and **4** bearing caps without tightening the bolts, then nos.5-1-3 caps

NOTE
Coat the joint faces of caps nos.**1** and **5** with FORMATJOINT sealing compound

IV

- Tighten the bolts progressively in the order shown :

  - tightening torque : **10 Nm (7 lbf ft)**

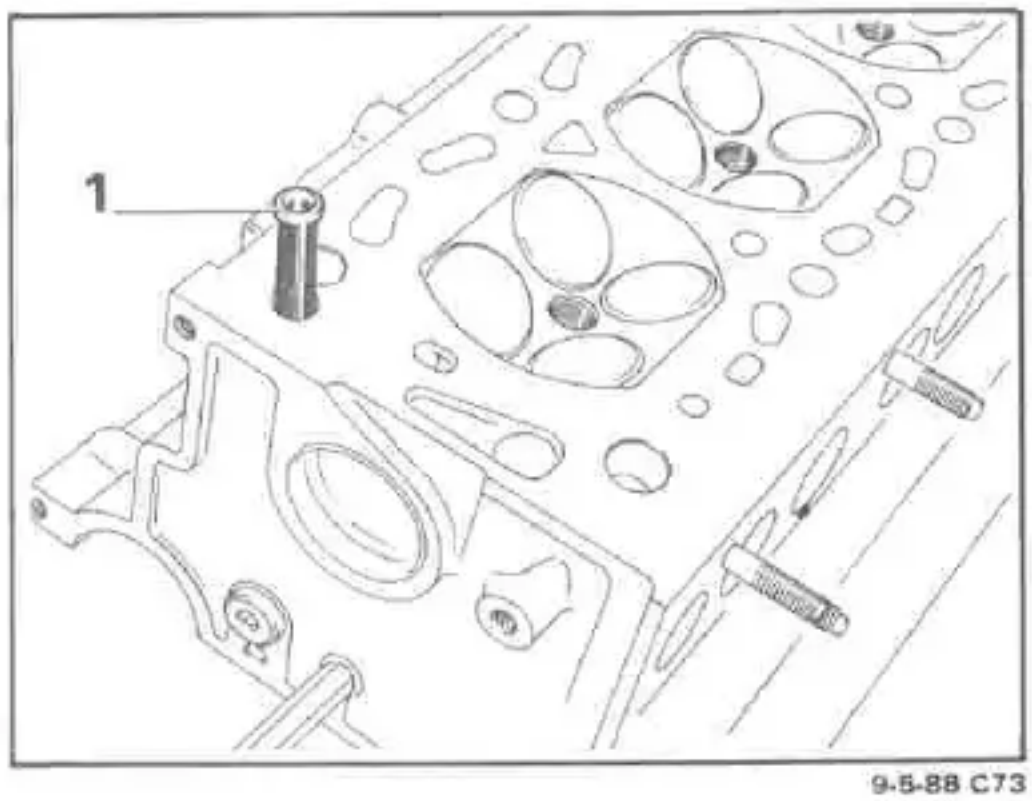
V

- Using tool **(-).0153 K** and a bolt **(8)**, fit new camshaft oil seals **(9)**

NOTE

At the distributor end, use tool **(-).0153 L**

I



9-5-88 C73

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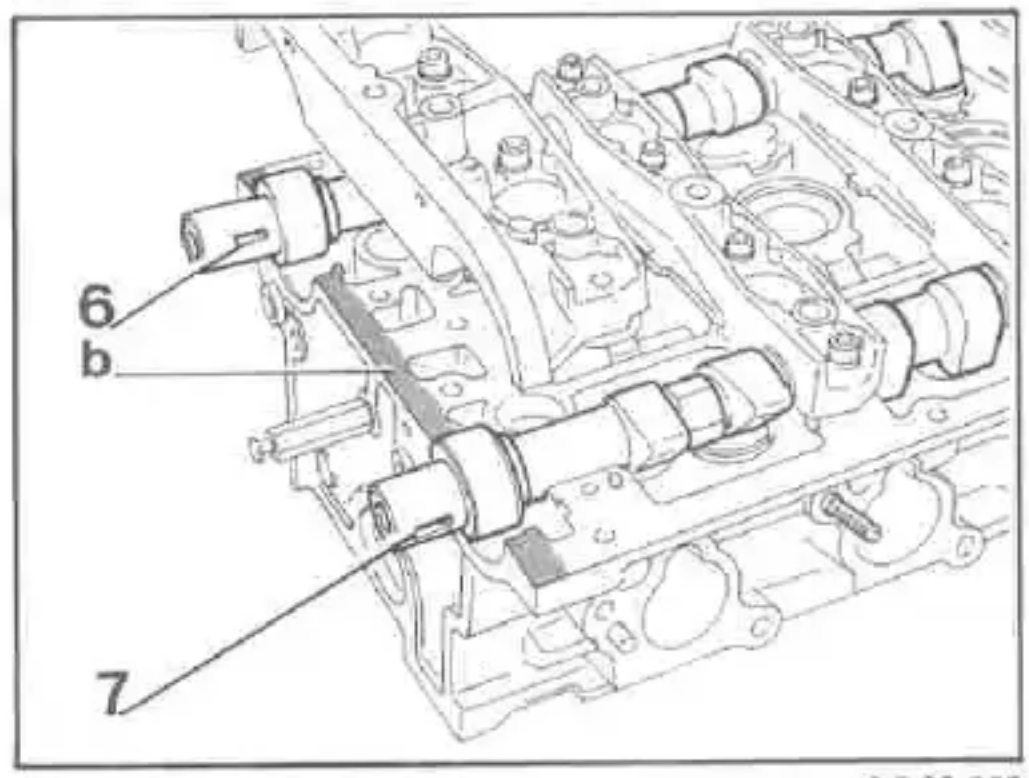

9-5-88 C63

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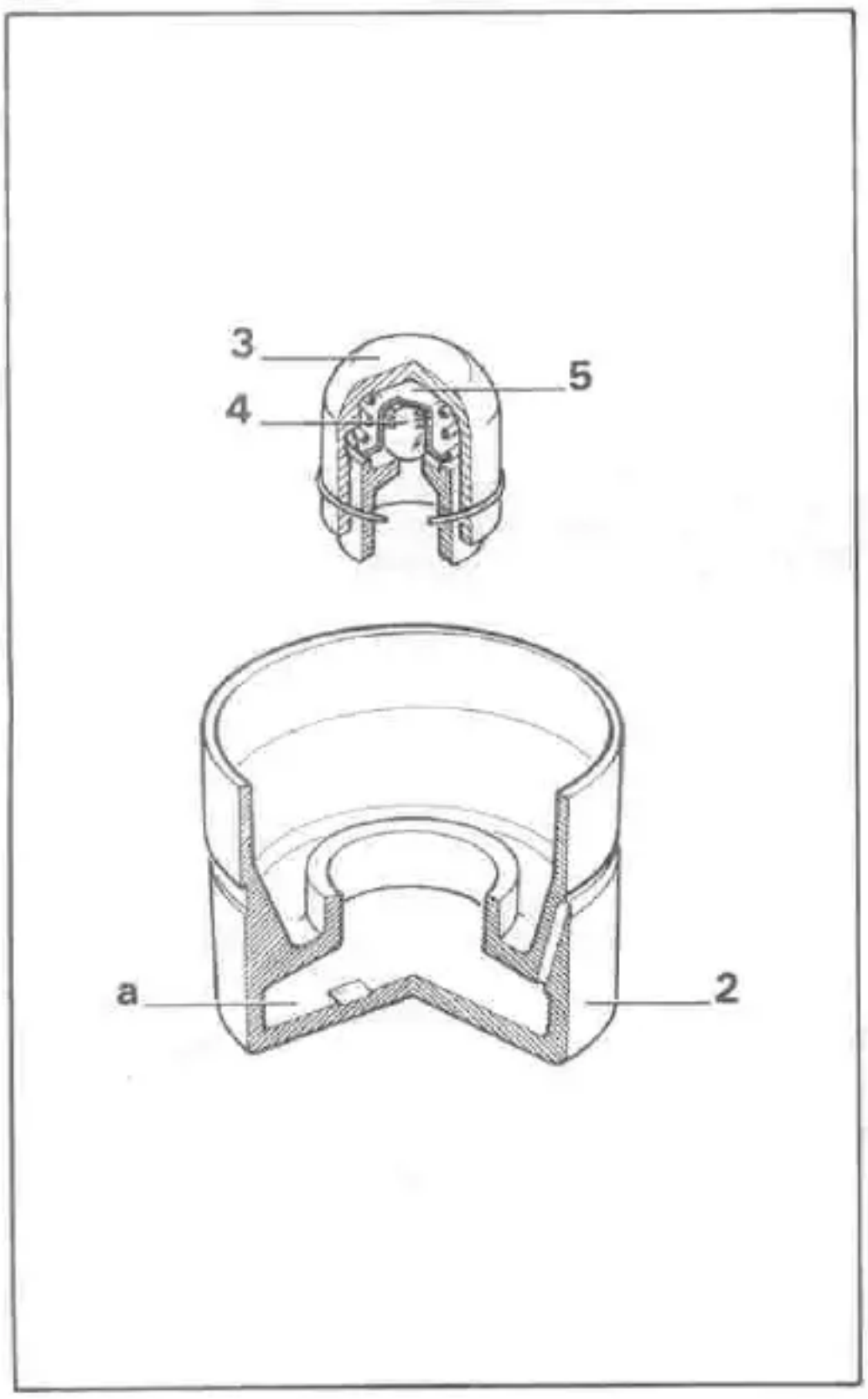

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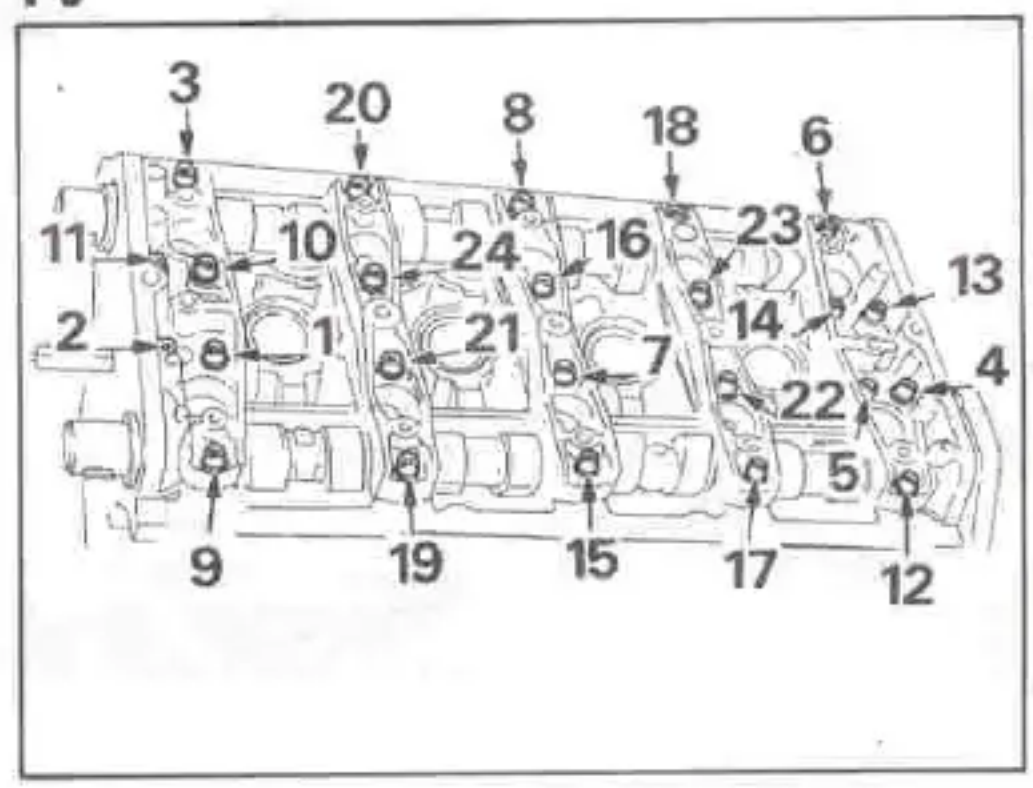

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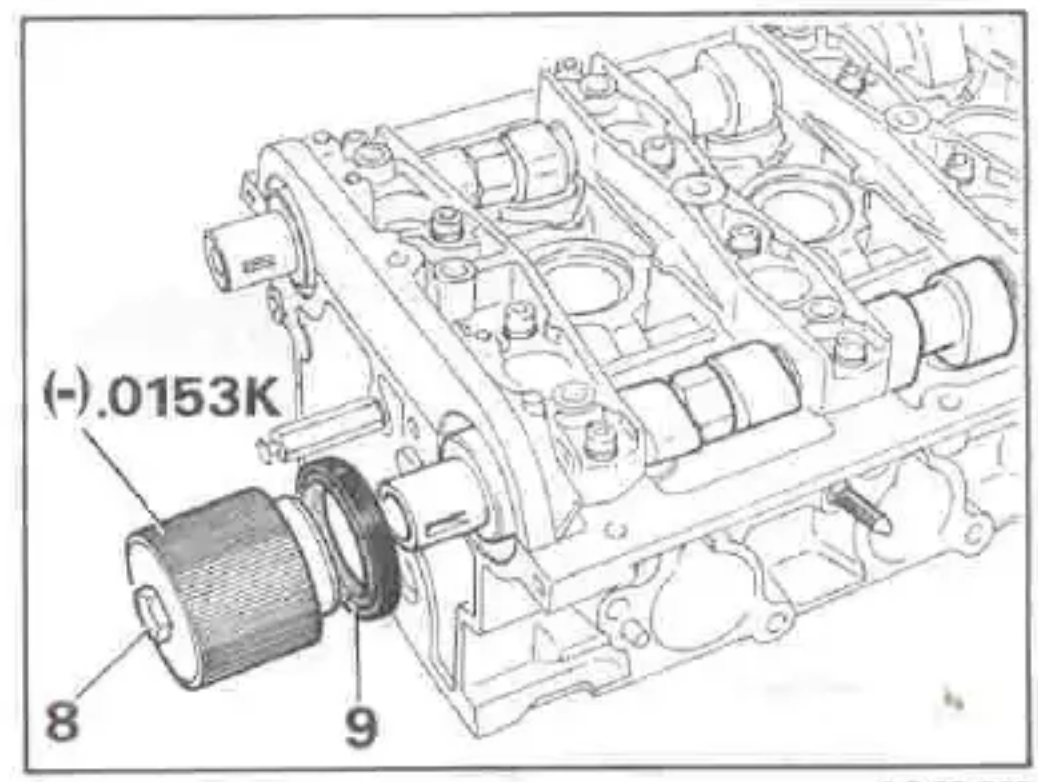
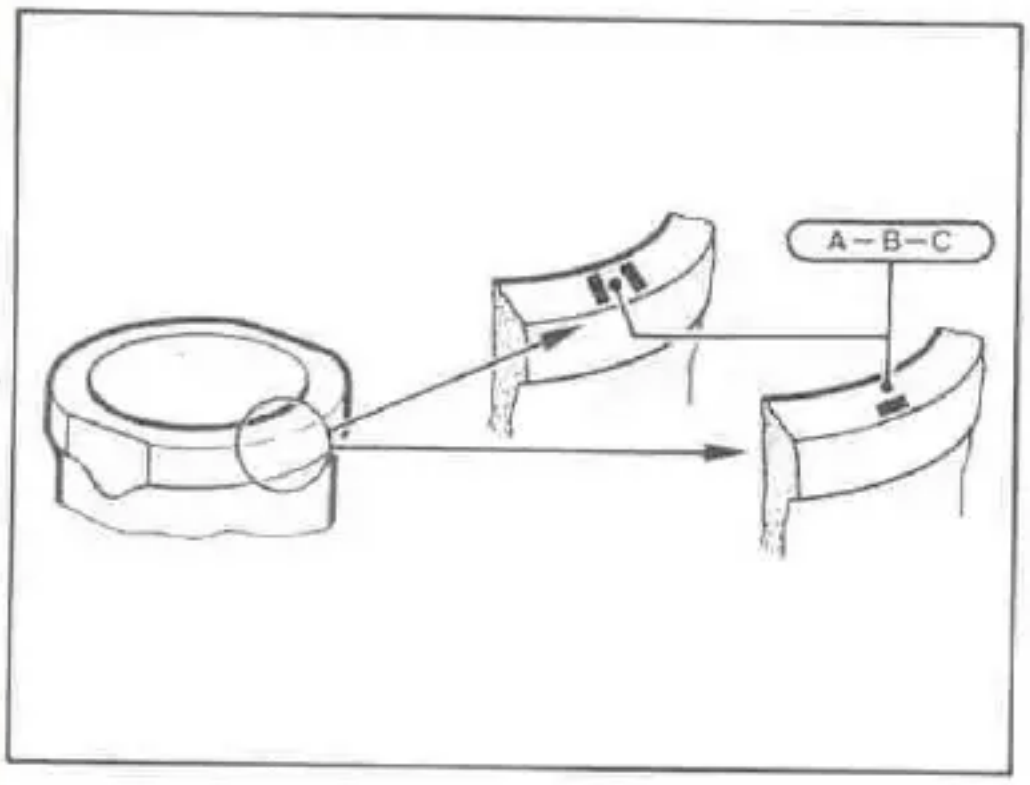


9-5-88 C62

XU9J4	

I



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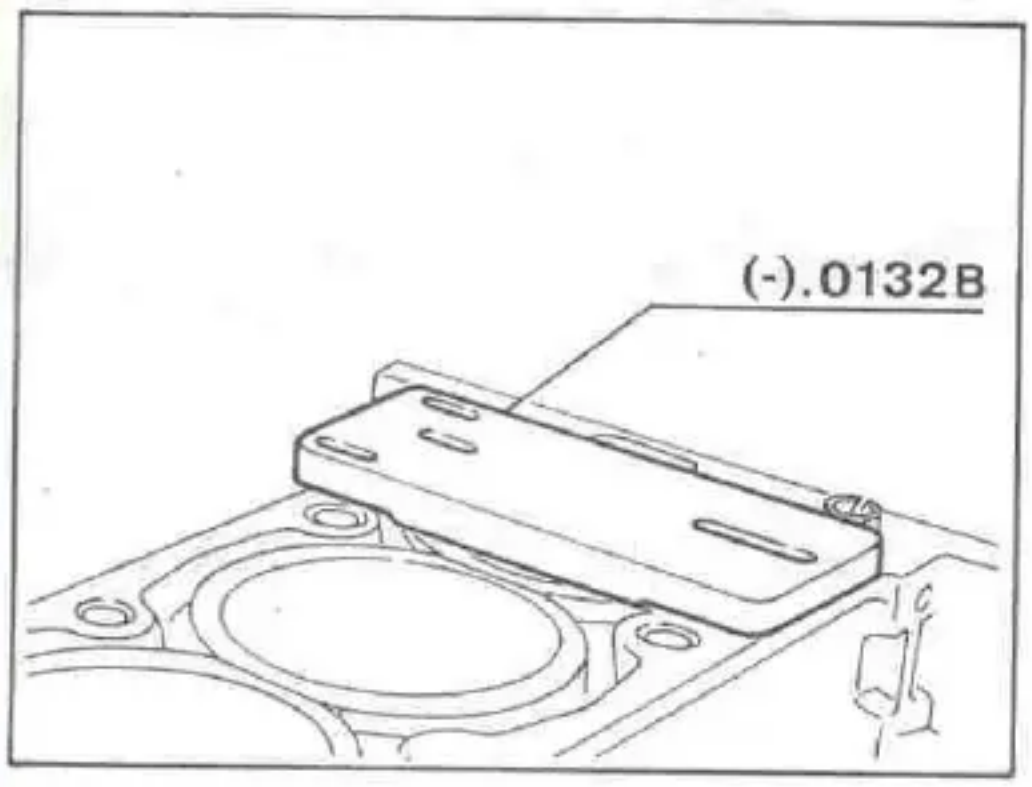

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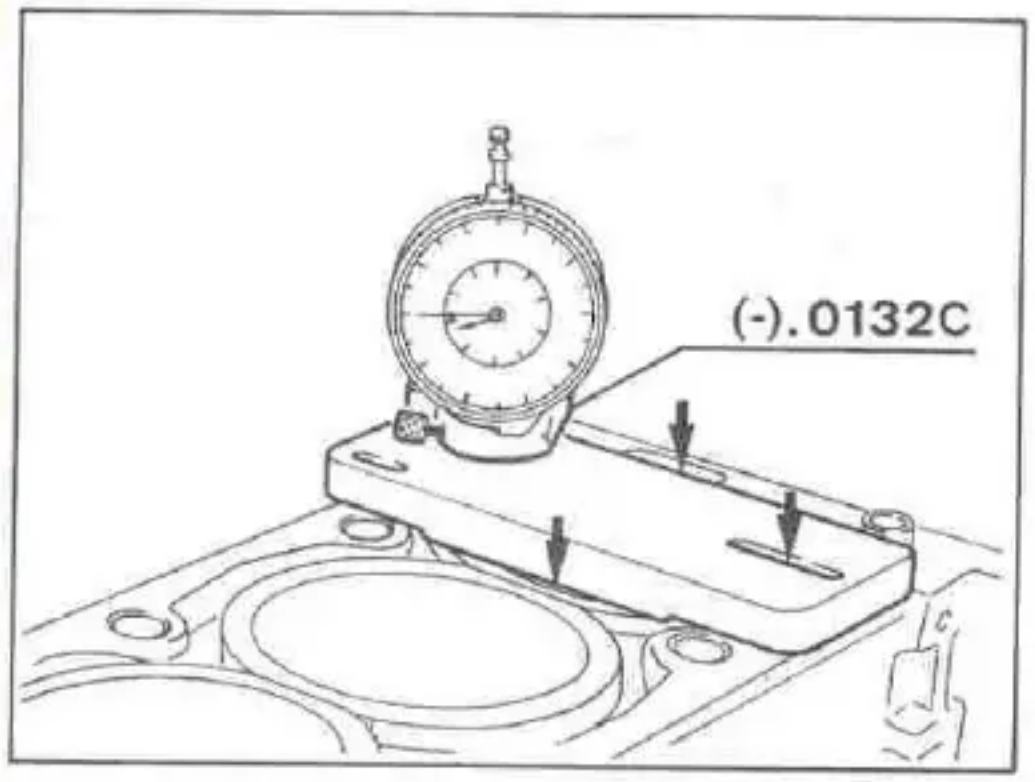

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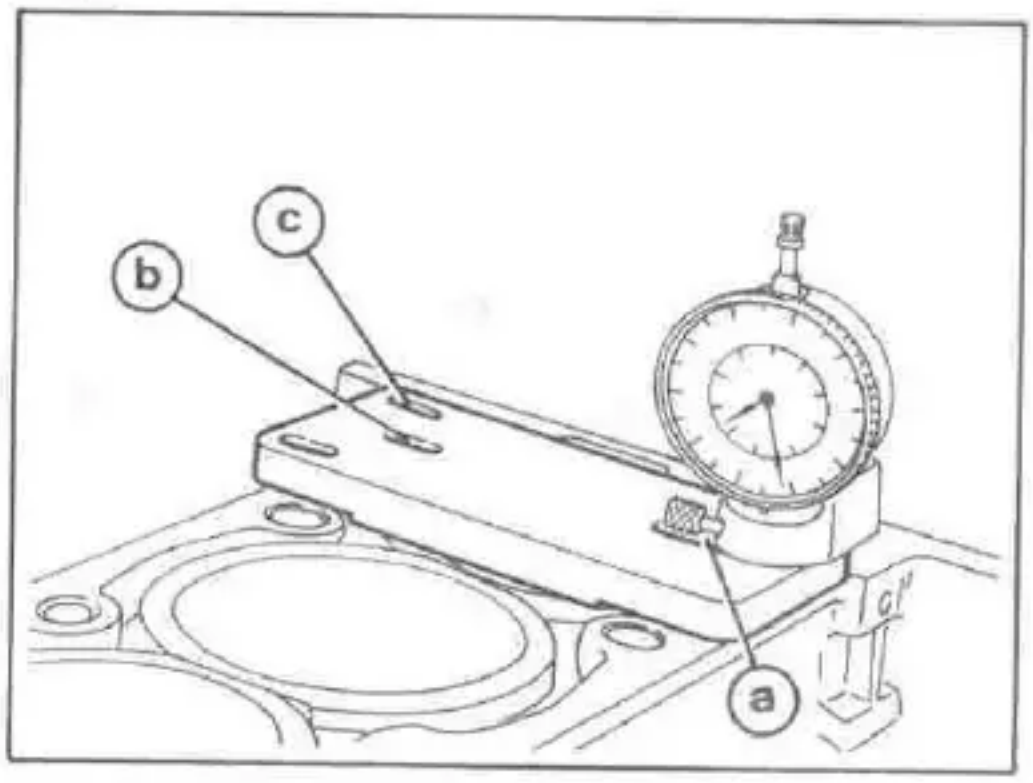

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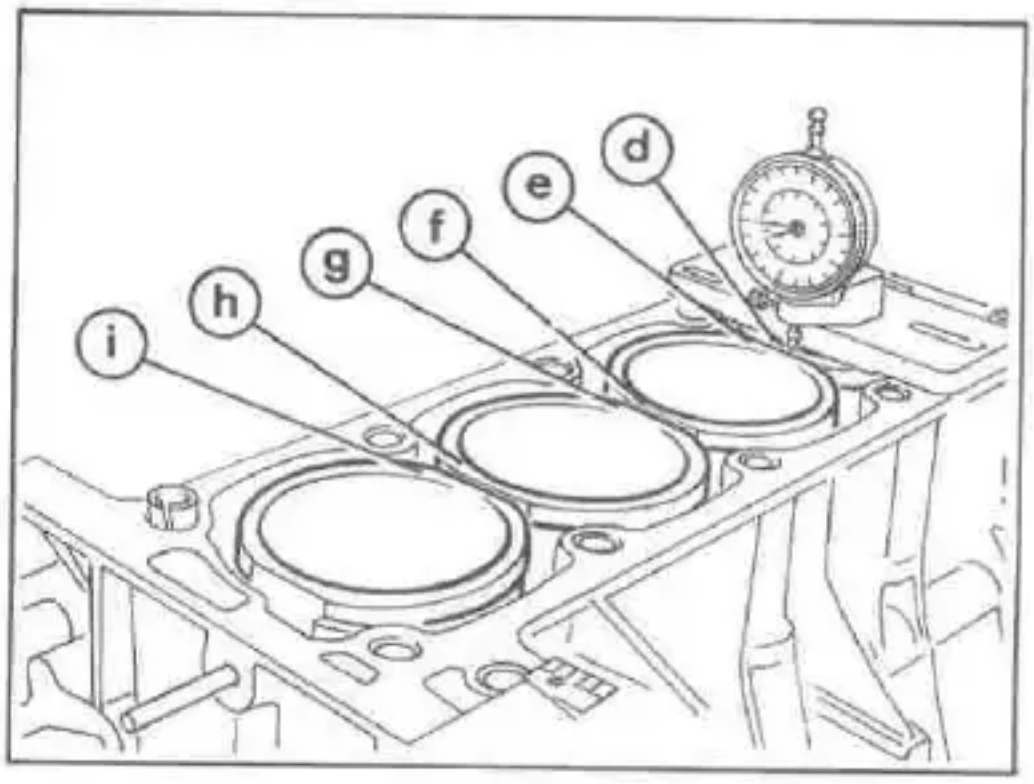

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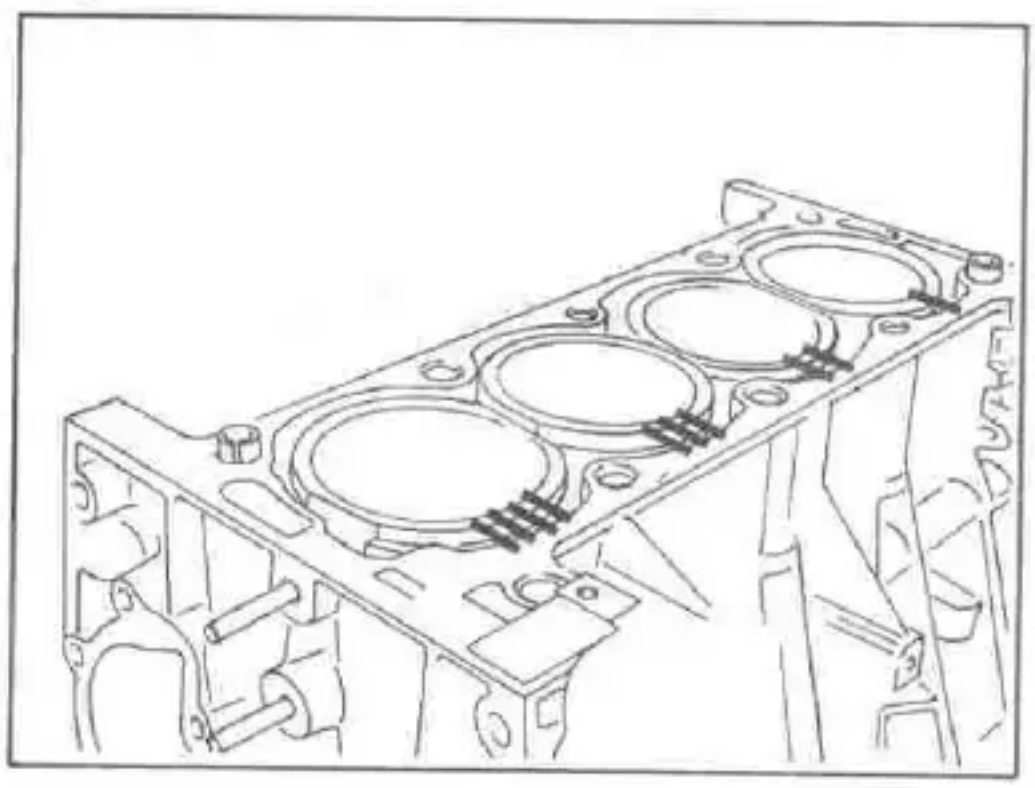


I

CHECKING LINER PROTRUSION

In this assembly, the liners seat directly on the cylinder block, and their protrusion is obtained by the manufacturing dimensions of the block and liners

The letters **A, B** and **C** are the grade identification (see identification page)

II

NOTE

If the liners are re-used, align the markings made on dismantling

- Fit :
  - the four liners
  - the plate **(-).0132 B** with the flat face upward

III

- Mount the dial gauge on the support **(-).0132 C**
- Zero the dial gauge on the liner
- Liner protrusion : **0,03 to 0,10 mm**
- Measure at four points : the variation must not exceed **0,02 mm.** : if it does, rectify the cause

IV

- Measure the protrusion of the liner in relation to the block at three points **(a)**, **(b)** and **(c)**

  If the variation between the three points is more than **0,02 mm.**, rectify the cause

- The procedure is the same for each liner

V

- Check the difference in level between the points **(d)** and **(e)** **(f)** and **(g)**, **(h)** and **(i)** Maximum difference in level : **0,05 mm**

NOTE

With new liners, protrusion and level differences may be corrected by rotating half a turn

VI

- Mark the positions of the liners than remove them

XU9J4	RE-ASSEMBLY

I

ASSEMBLING PISTONS AND CONNECTING RODS

- Assemble the pistons to the connecting rods :
  - **DIST** marking on the piston to the right
  - notch **(a)** to the bottom
- Fit the gudgeon pin circlips with their gaps towards the piston rings

II

FITTING THE PISTON RINGS

- The rings must be free in their grooves when fitted

IMPORTANT

The face marked at **(b)** must be towards the top

Position the gap **(c)** of the SCRAPER RING **(1)** as shown opposite

SPACE THE GAPS OF THE TAPER RING **(2)** AND CHROMED RADIUSED RING **(3)** at 120° either side of the scraper ring gap **(c)**

- Oil the piston. Moderately tighten the ring clamp

III

NOTE

- Position the piston in the liner so that on assembly :
  - the markings on the liner and block coincide
  - the arrows on the pistons are towards the timing gears

IV

ASSEMBLING PISTONS AND LINERS

- Push the liner on the piston until the piston ring clamp is freed
- Proceed in the same way for the other three pistons

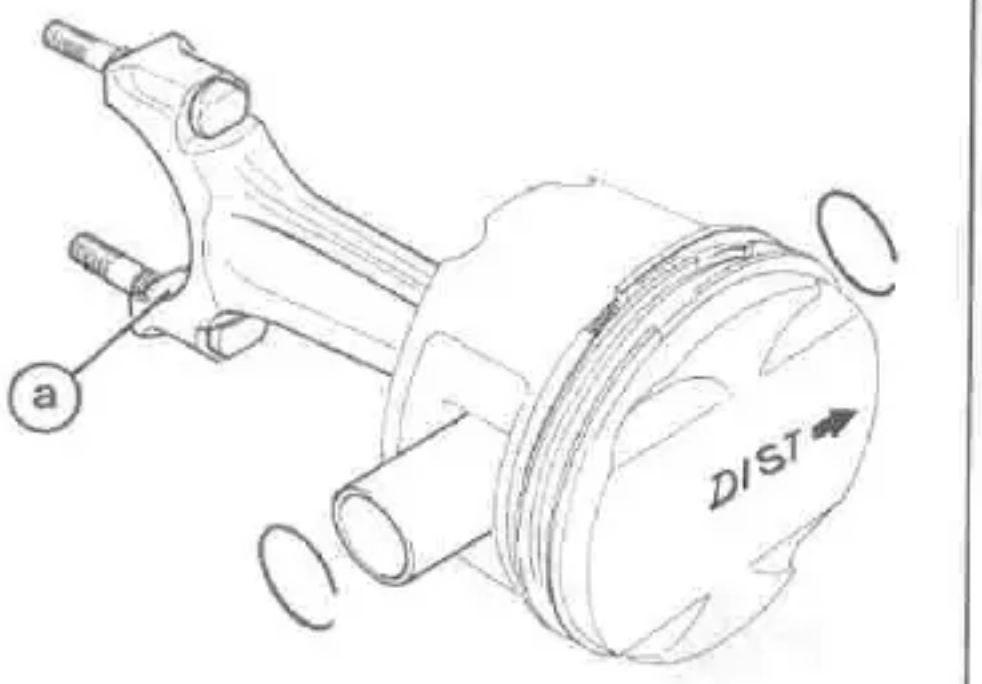
V

- Fit the sealing rings **(4)** without twisting them
- Check that they are correctly positioned
- Fit the big end bearing shells

  For bearing shell thickness, see identification page

	XU9J4

I



9-5-88 C66

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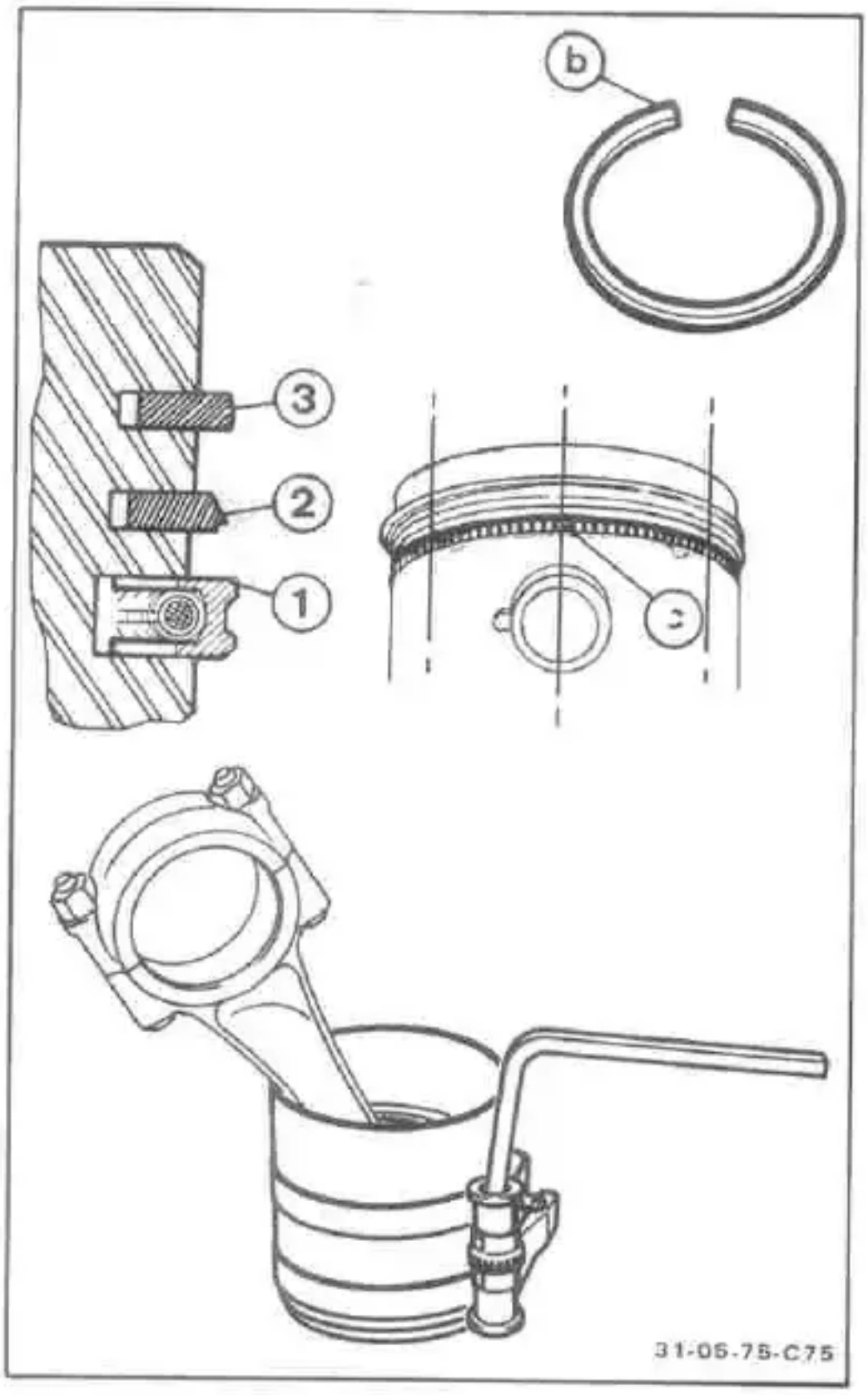
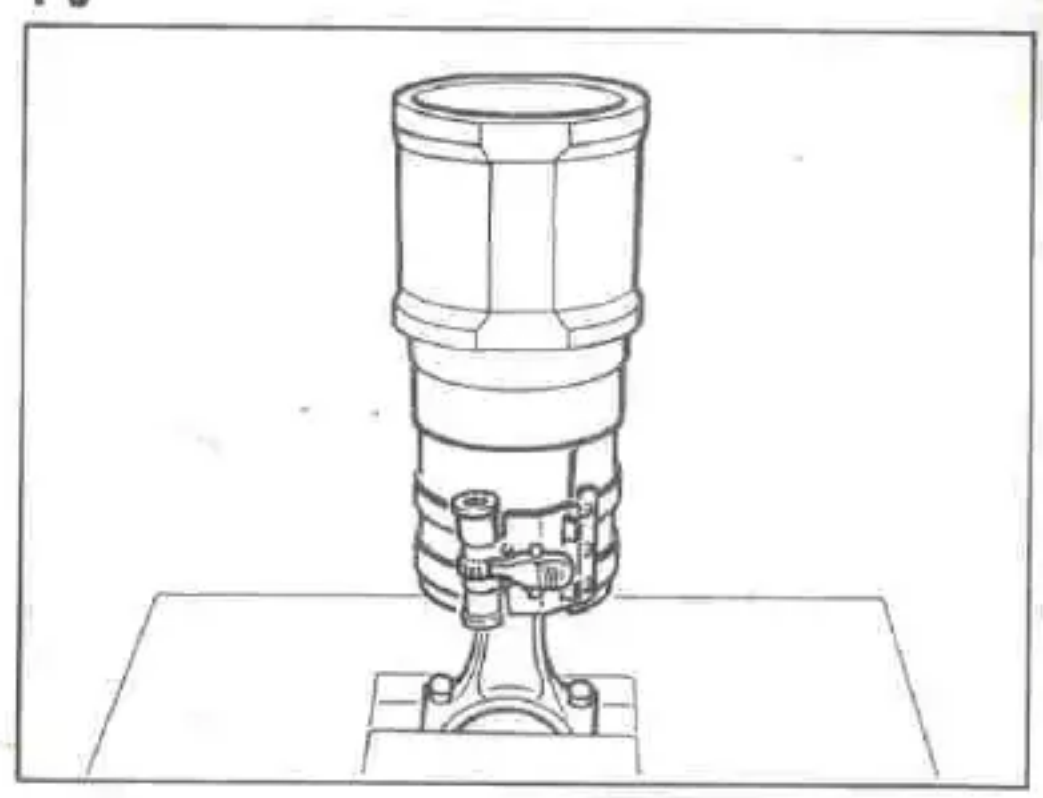


III

9-5-88 C68

IV



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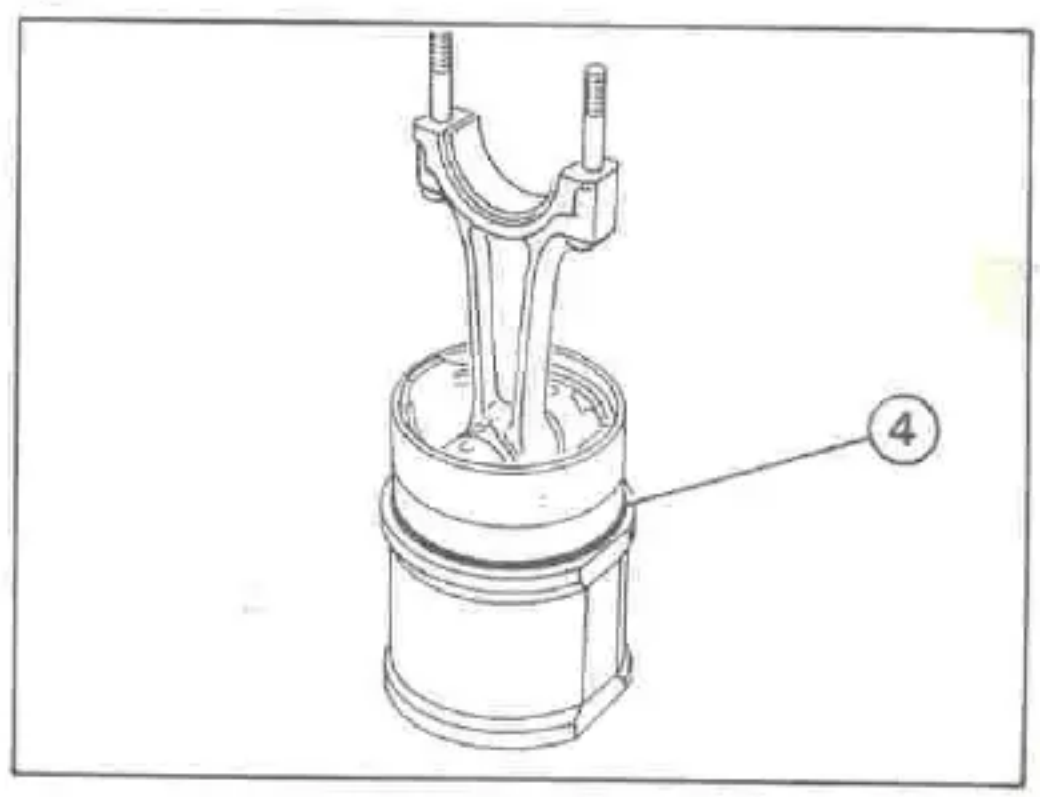
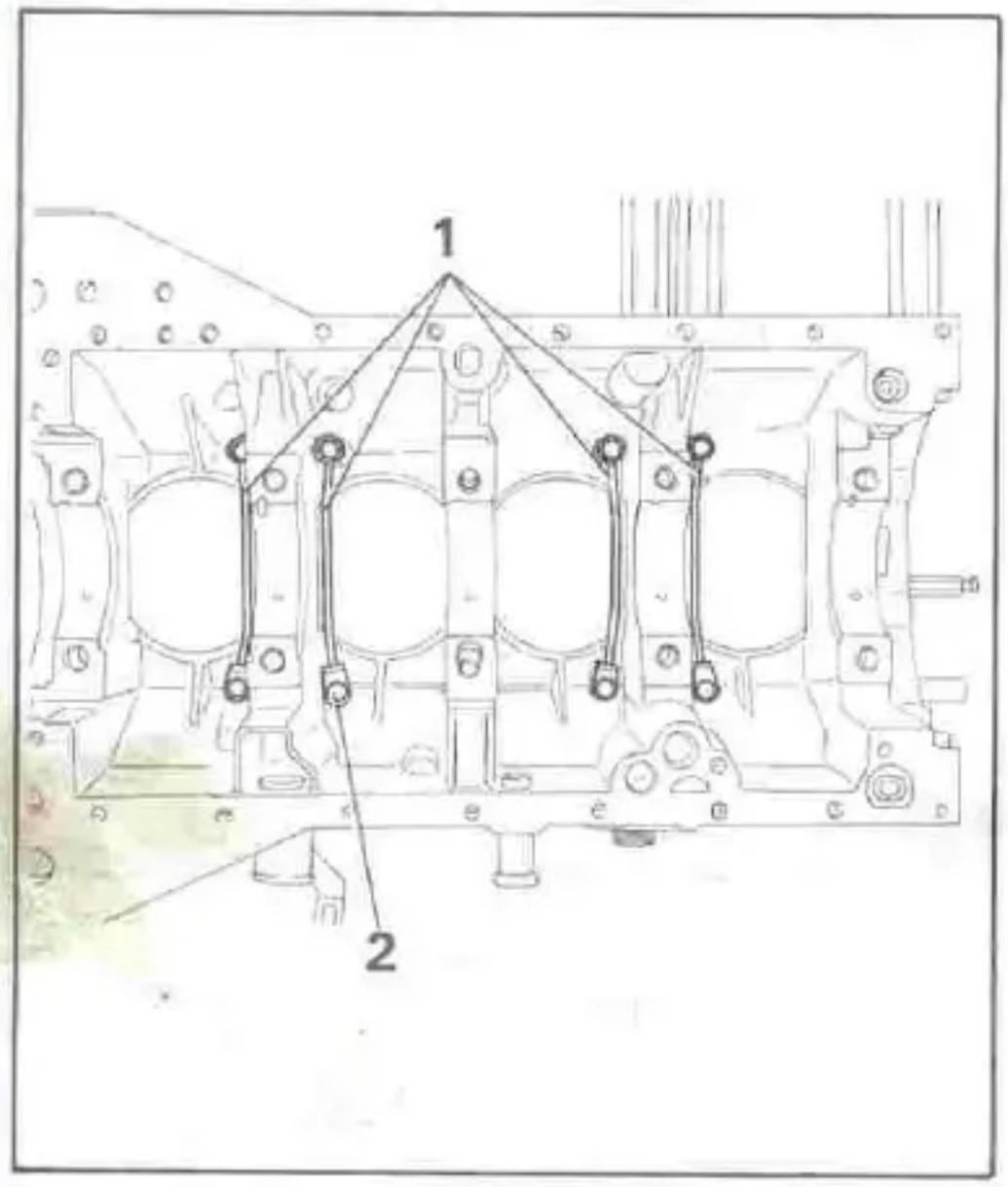


31-05-75-C75

XU9J4	

I



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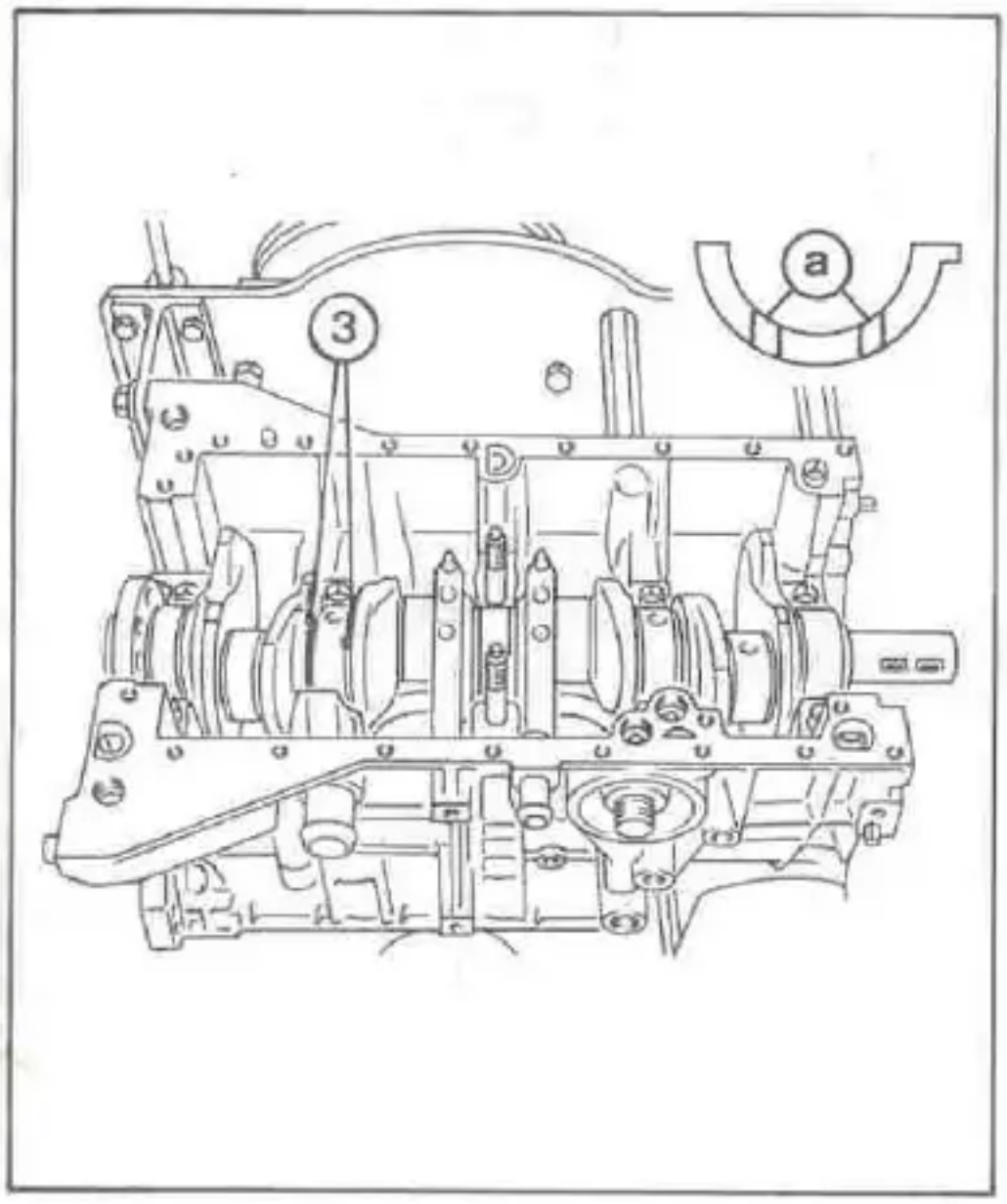

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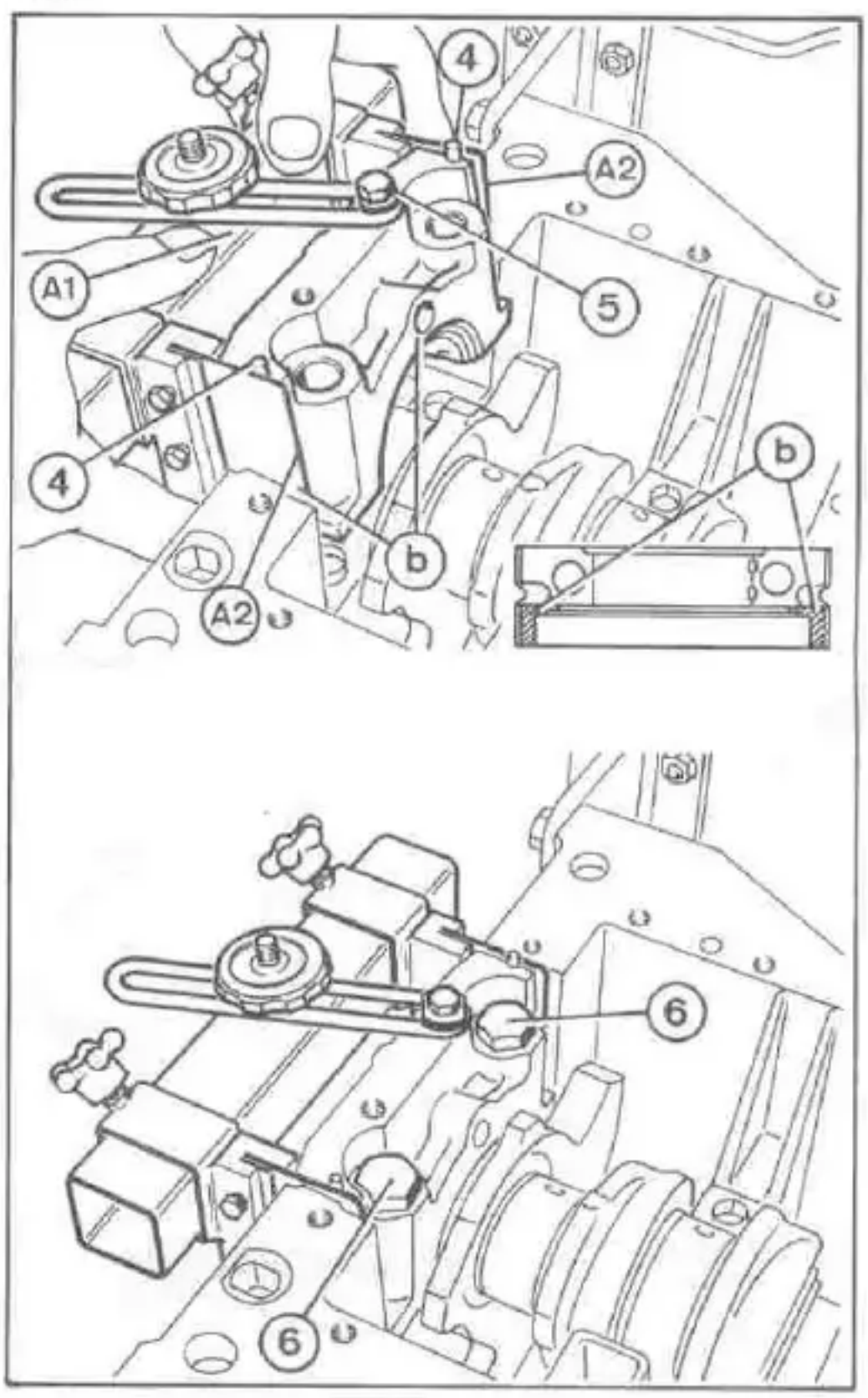

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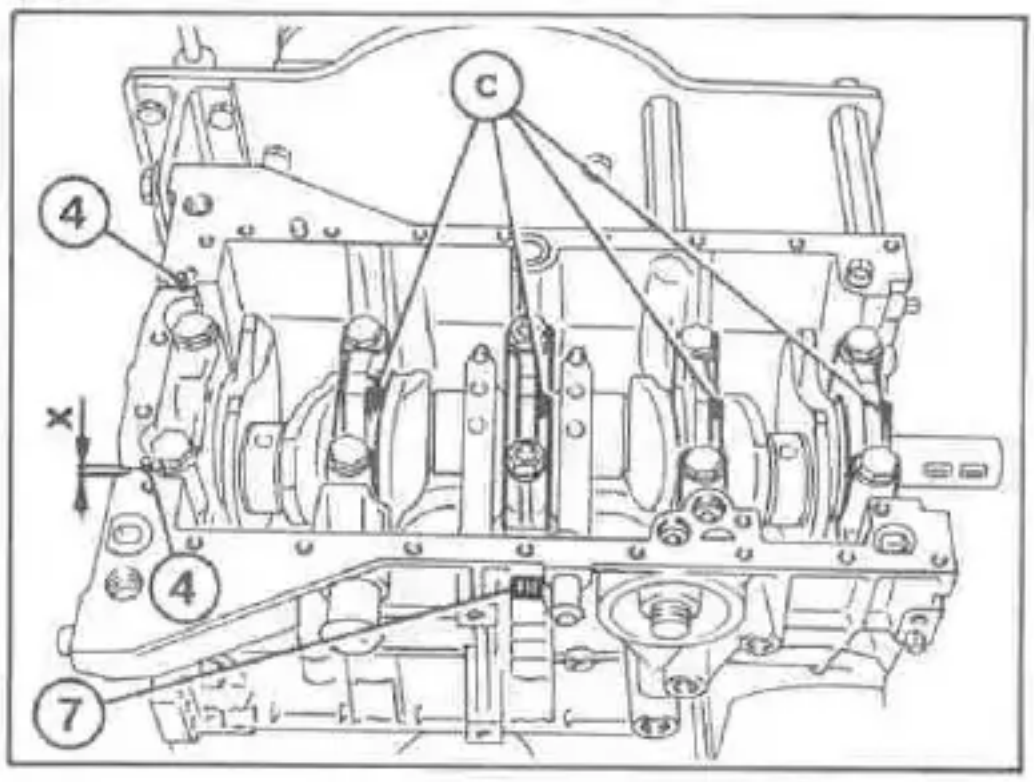


I

CRANKSHAFT

- Check the condition of the crankshaft :
  - the pins
  - the journals
  - the tappings
  - the keyway

- Fit the piston lubrication pipes **(1)**

- Coat the bolts **(2)** with THREADLOCK LOCTITE and tighten them to **10 Nm (7 lbf ft)**

- Fit the main bearing shells according to their markings

- Oil
  For bearing shell thicknesses, see identification page

II

- Fit :
  - the crankshaft
  - two thrust half washers **(3)**

NOTE

To select half washer thickness, identification page

- Oil, the grooved face **(a)** to the crankshaft

III

- Fit the side seals **(4)**
- Apply a thin coat of SILICONE CLASS 1 sealing compound to the surfaces **(b)**
- Attach tool **(-).0153 A1**, fitted with shims **A2**, using a bolt **(5)** and washer
- Oil the shims and the housing

WARNING

To avoid stretching the side seals, fit the bearing cap as follows :

- insert it into the housing at 45°
- straighten it
- lower it gently
- fit and tighten the two bolts **(6)**
- Remove the bolt **(5)** and withdraw the tool horizontally

IV

IMPORTANT

The main bearing caps are fitted with their notches **(c)** towards the timings gears

- Fit :
  - no.**2** bearing cap with its two thrust half washers, grooved faces towards the crankshaft
  - nos.**3-4-5** bearing caps and their shells according to the marking made on dismantling
- Tighten :
  - the bolts and nuts to **50 Nm (37 lbf ft)**
  - the two side bolts **(7)** to **25 Nm (18 lbf ft)**
- Check the protrusion of the seals **(4) x = 2 mm.**
- Cut back if necessary

I

CHECKING CRANKSHAFT ENDFLOAT

- Mount the dial gauge on the cylinder block at the timing gear end
- Push the crankshaft to one end
- Zero the dial gauge
- Push the crankshaft in the other direction : endfloat **= 0,07 to 0,27 mm.**

NOTE

- For thrust half washer thicknesses available, see identication page
- Correct the endfloat if necessary

IMPORTANT

All four thrust half washers fitted must be the same thickness

- Check that the crankshaft rotates freely

II

- Position a new oil seal **(1)** on tool **(-).0153 B**
- Oil
- Fit the seal by tapping fully home with a mallet
- Remove the tool with a turning movement

III

- Fit the piston/connecting rod/liner assemblies into their correct bores (markings on the liners in line with the markings on the block)
- Fit the clamps **(-).0132 A1Z**

NOTE

The connecting rods and their caps are matched and identified by dabs of paint

- Oil
- Fit the big end caps
- Pre-tighten the nuts to **40 Nm (30 lbf ft)**
- Slacken the nuts then tighten to **20 Nm (15 lbf ft)** followed by a further **70°** tightening using a tool of FACOM D360 type

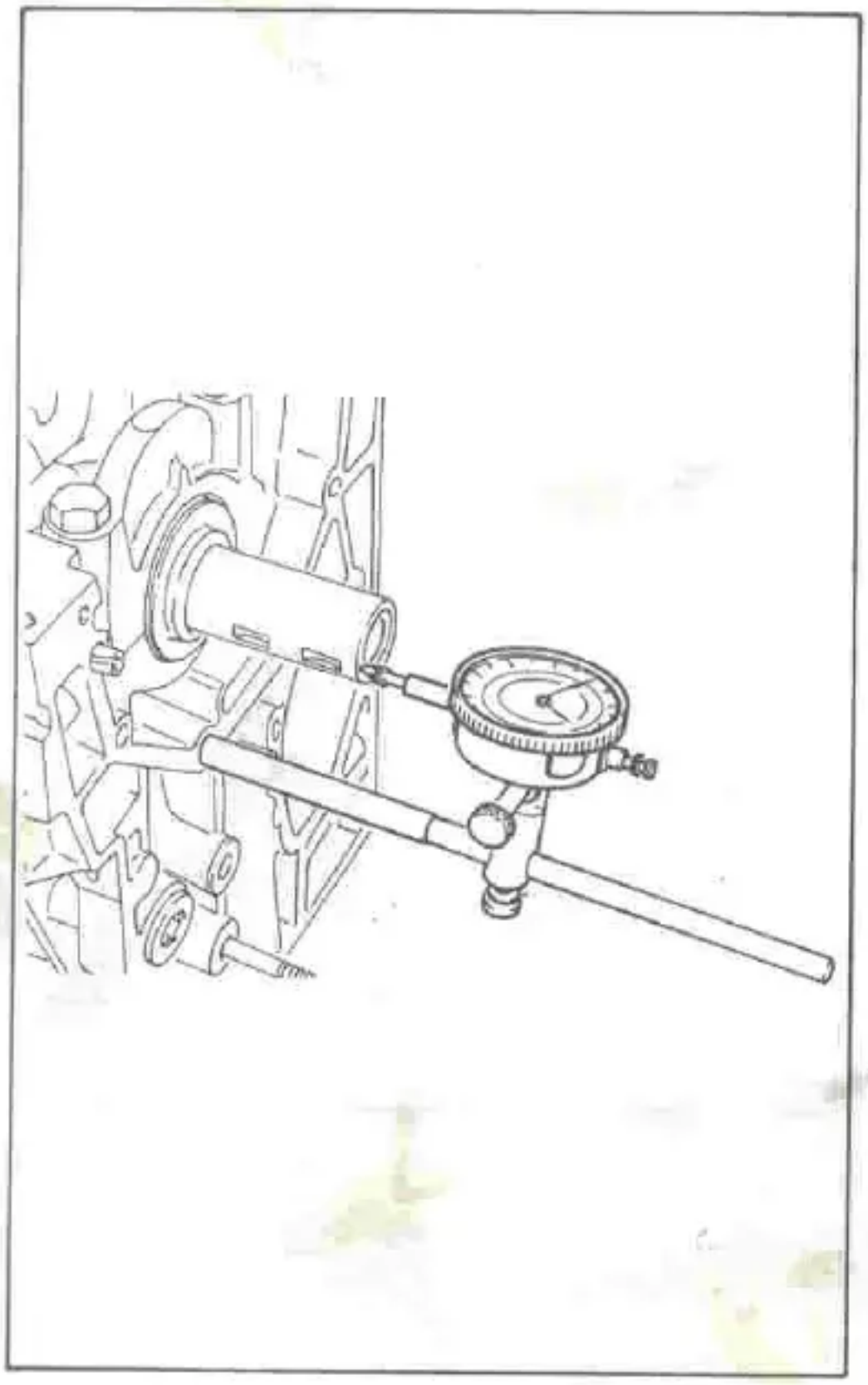
IV

- Fit :
  - the oil pump assembly **(2)**, drive chain and sprocket **(3)** with the L-shaped shim at **(4)**
- Tighten the bolts **(5)**, **(6)** and **(7)** to **20 Nm (15 lbf ft)**.

WARNING

The bolt **(5)** serves to centralise the pump

I



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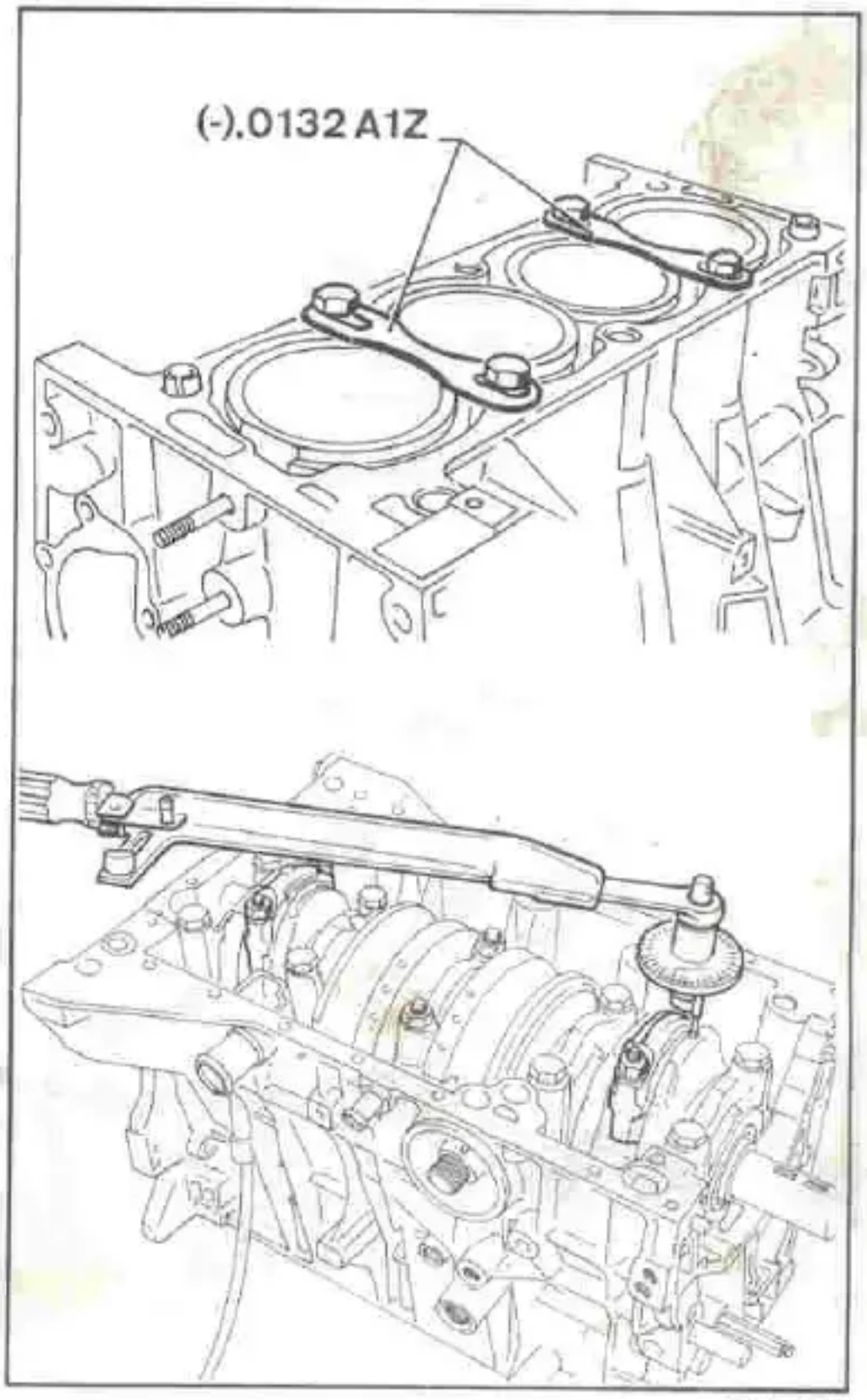
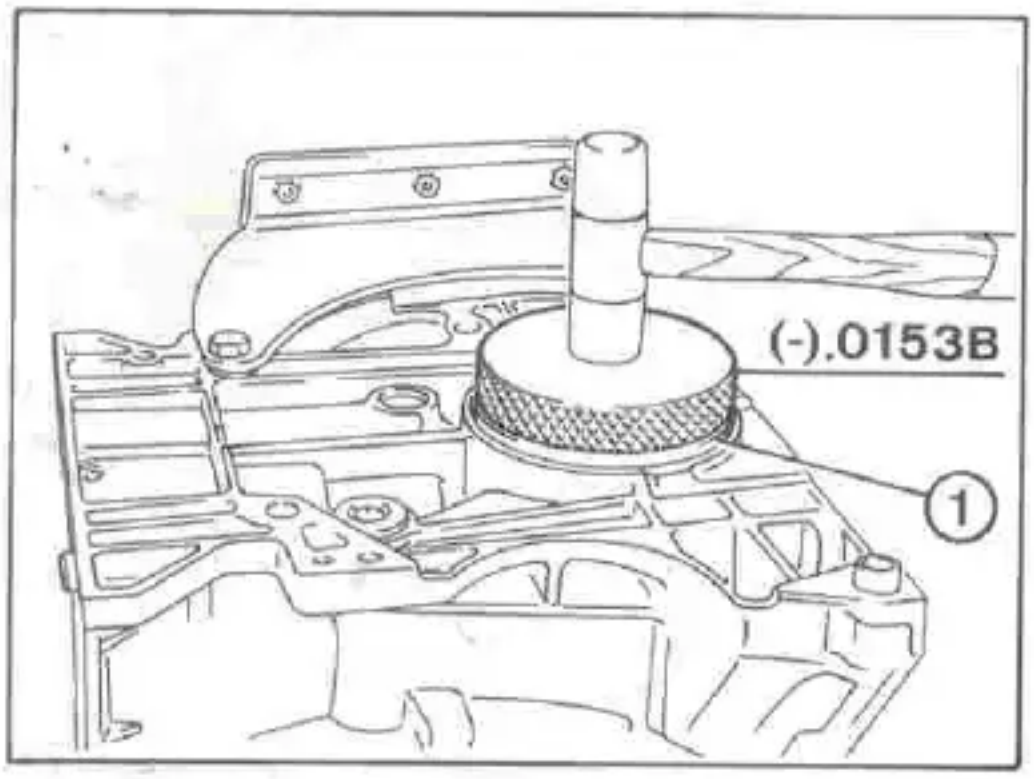


9-5-88 C85

II



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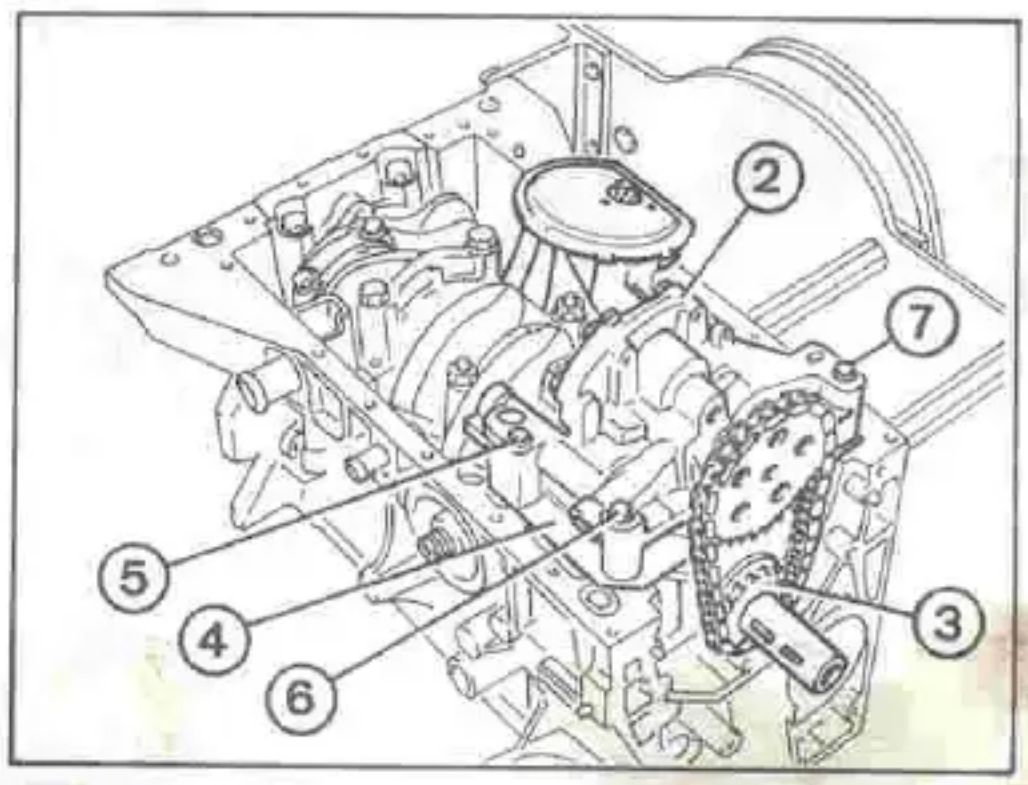
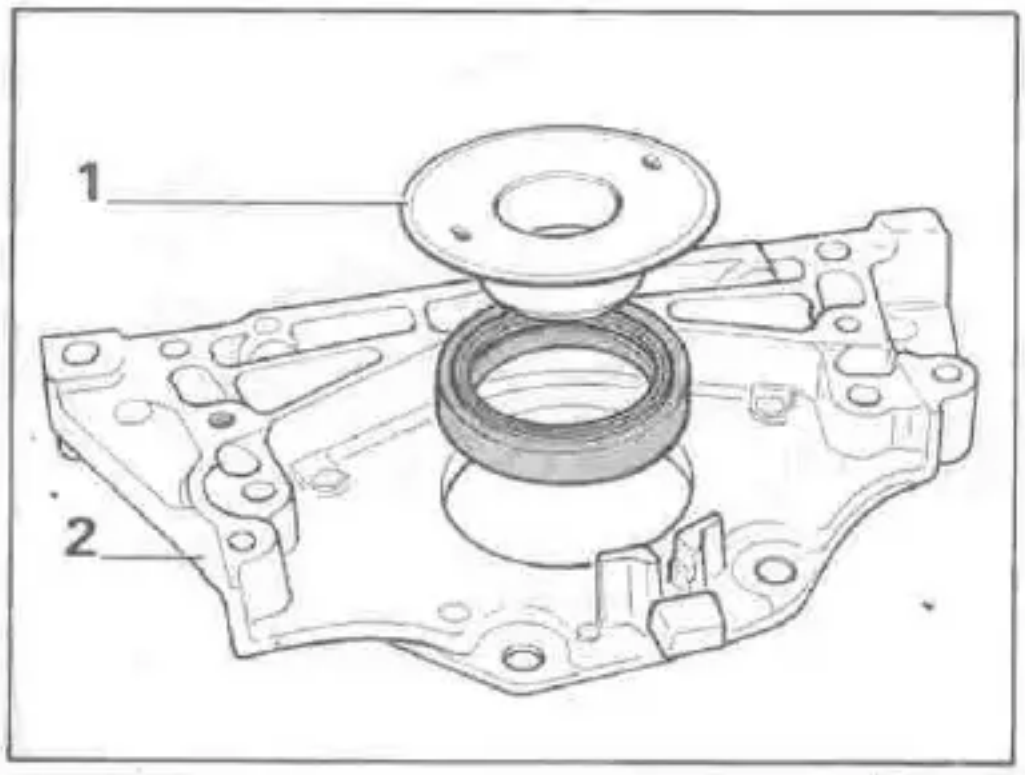


XU9J4

I



9-5-88 C84

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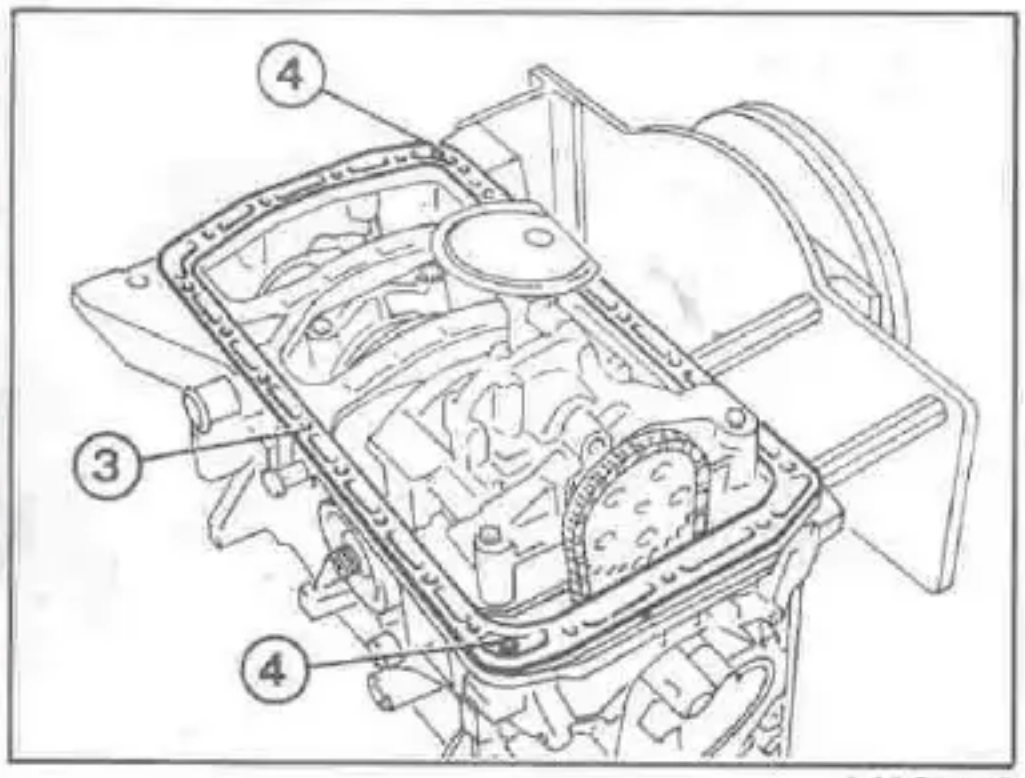

3-12-86 C40

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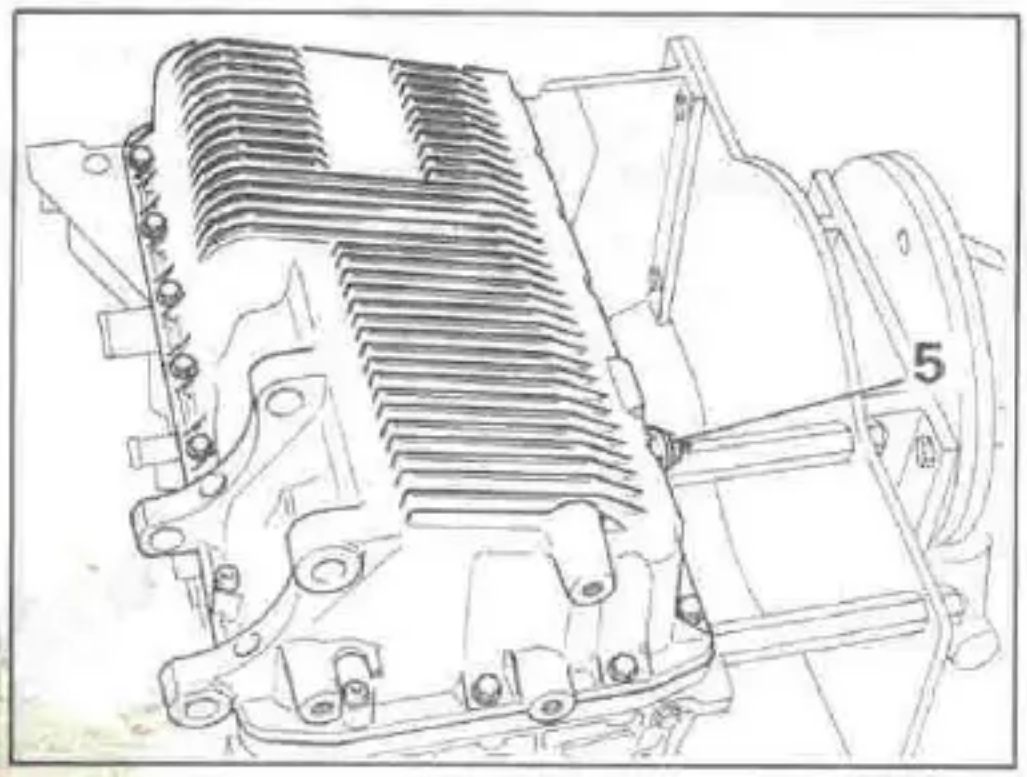

9-5-88 C52

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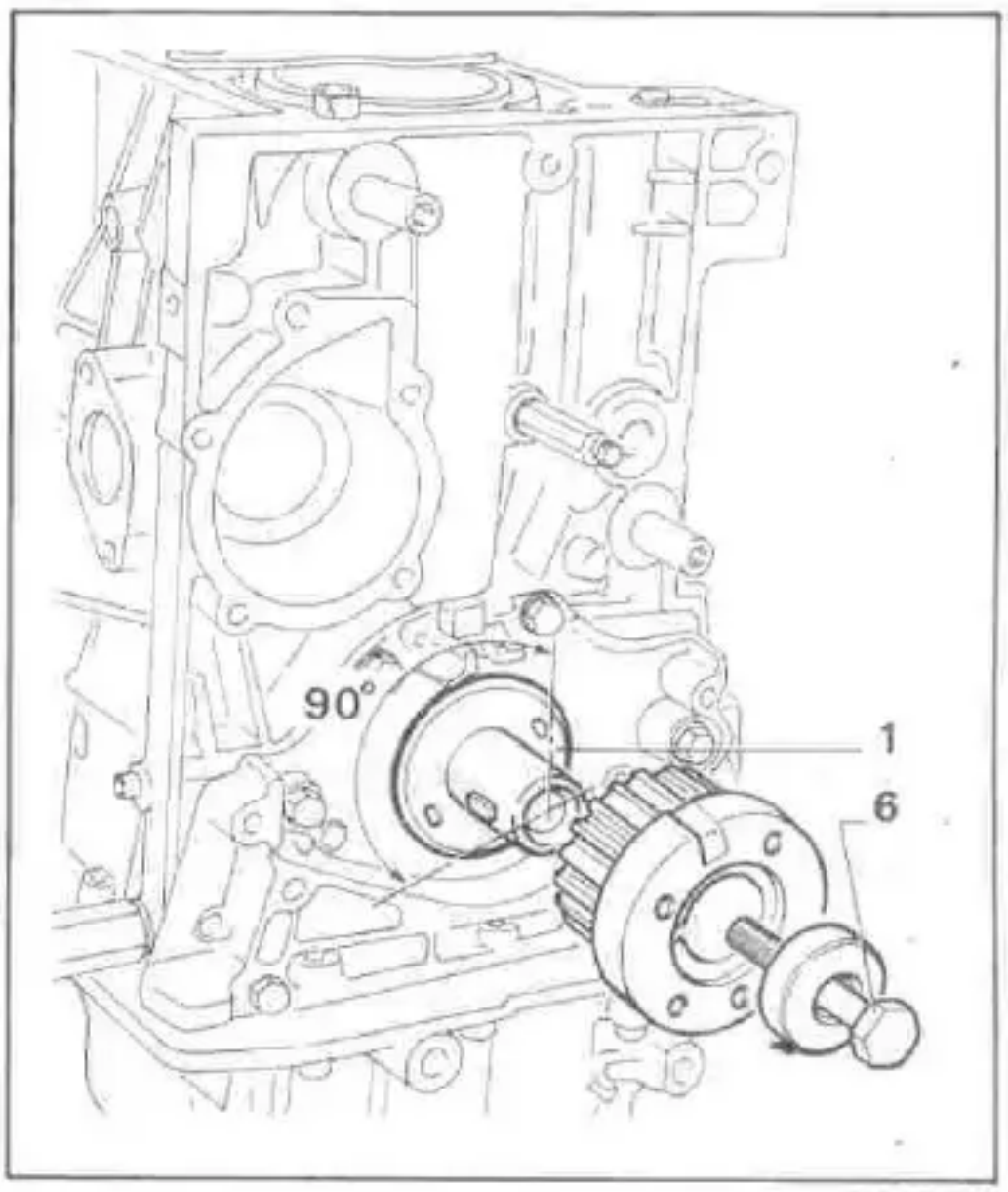

9-5-88 C80

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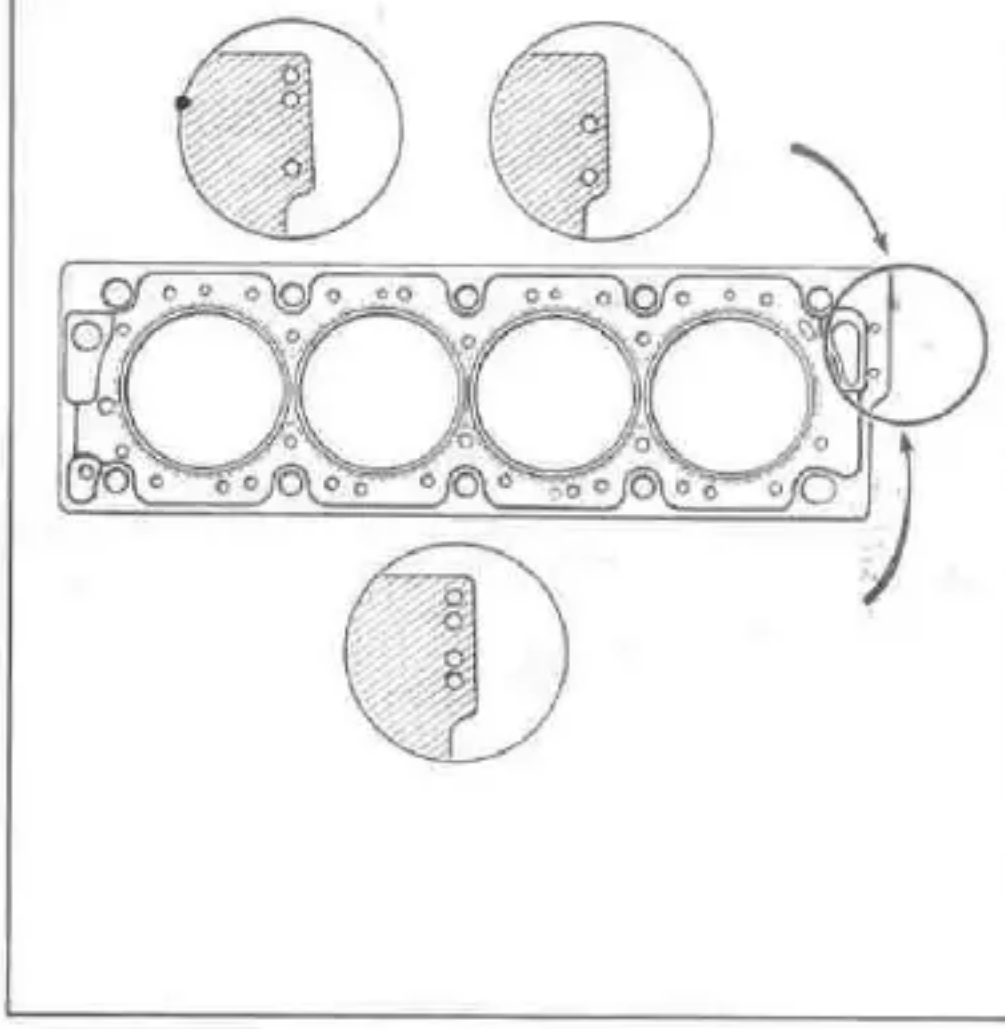


I

- Fit the new oil seal using the oil pump sprocket spacer **(1)**
- Coat the plate **(2)** with SILICONE CLASS 1 jointing paste
- Tighten the bolts to **15 Nm (11 lbf ft)**

II

- Coat the face of the spacer **(3)** in contact with the cylinder block with SILICONE CLASS 1 jointing paste
- Fit the spacer **(3)**
- Tighten the two bolts **(4)** to **10 Nm (7 lbf ft)**

III

- Fit the sump using SILICONE CLASS 1 jointing paste

NOTE
Depending on specification, some engines are fitted with two short bolts at no. 1 main bearing end

- Tighten the bolts to **20 Nm (15 lbf ft)**
- Fit the oil temperature sensor **(5)**

IV

- Turn the crankshaft to position the key at approximately **9 o' clock**
- Fit the flywheel, coating the bolts with THREADLOCK LOCTITE
- Fit the flywheel locking tool of FACOM D86 type
- Tighten the bolts **50 Nm (37 lbf ft)**
- Fit the clutch unit using mandrel **(-).0213**
- Tighten the bolts to **25 Nm (18 lbf ft)**
- Fit :
  - the spacer **(1)**
  - the timing gear and its key
- Tighten the bolt **(6)** to **110 Nm (81 lbft ft)**
- Remove the flywheel locking tool

V

CYLINDER HEAD

- Remove the clamps **(-).0132 A1Z**
- Check that the head face is clean
- Position a new cylinder head gasket, dry

IMPORTANT

For head gasket identification, see identification page

XU9J4	RE-ASSEMBLY

I

- Position the cylinder head

- Coat the threads and underside of the head of the bolts with MOLYKOTE G RAPID PLUS

- Fit the spacers under the bolt heads

- Fit and tighten the bolts in two stages, bolt by bolt, in the order shown opposite :
  1. Pre-tightening to **60 Nm (44 lbf ft)**
  2. Slacken, then tighten to **20 Nm(15 lbf ft)** followed by a further **300°** tightening using a tool of FACOM D360 type

II

COOLANT PUMP

- Fit the coolant pump **(1)**, using a new joint

- Tighten to **15 Nm (11 lbf ft)**

- Fit the cover **(2)** with the slot **(3)** over the flange **(4)**

- Tighten the bolts **10 Nm (7 lbf ft)**

- Fit the tensioning rollers to their pins without tightening the bolts

III

TIMING GEARS

- Fit the camshaft gears **(5)** and **(6)** with their keys

- Lock the bolts **(7)** with washers at **45 Nm (33 lbf ft)**

NOTE

For tightening, lock the camshafts with an open-ended spanner

IV

- Position :
  - the camshafts, using rods **(-).0153 M**
  - the crankshaft, using rod **(-).0153 G**

- Fit the timing belt in its direction of running (arrows) in the following order :
  - camshaft gears **(5)** and **(6)**
  - tension roller **(7)**
  - crankshaft gear **(8)**
  - coolant pump gear **(1)**
  - tension roller **(9)**

V

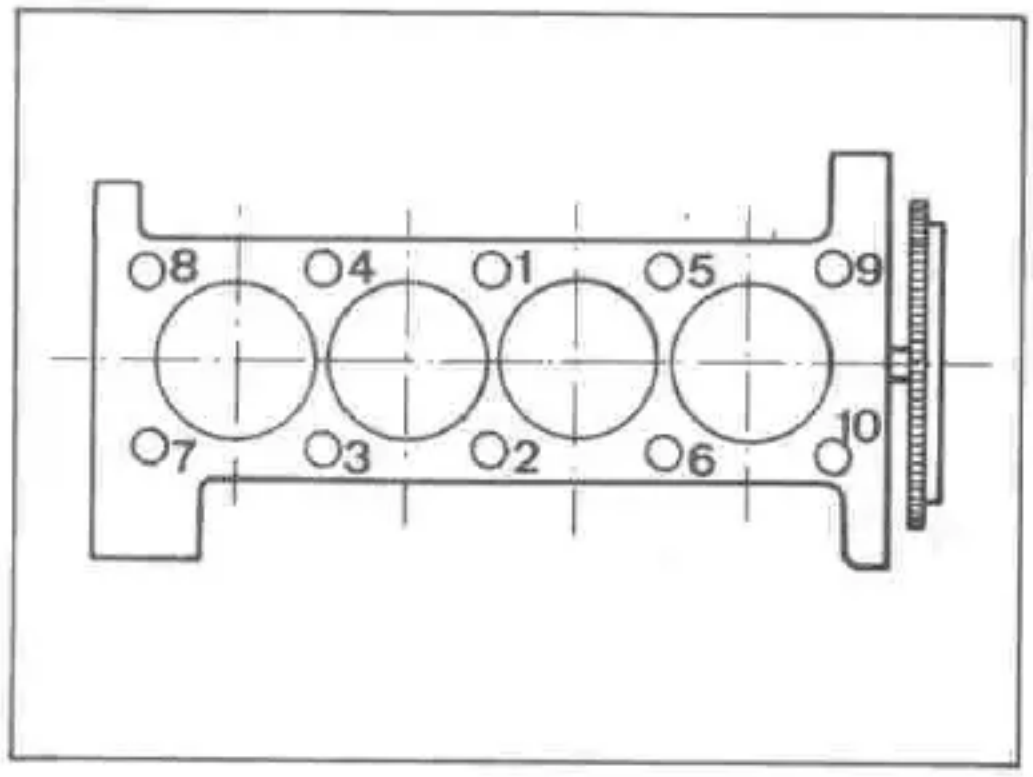
- Attach the belt tension measuring equipment to the belt **(a)** and lock it

- Rotate the tension roller **(7)** one complete turn

- Turn the tension roller **(7)** anticlockwise to obtain a reading of **19** SEEM units (**6** daN/run)

- Tighten the bolt **(10)** to **20 Nm (15 lbf ft)**

I



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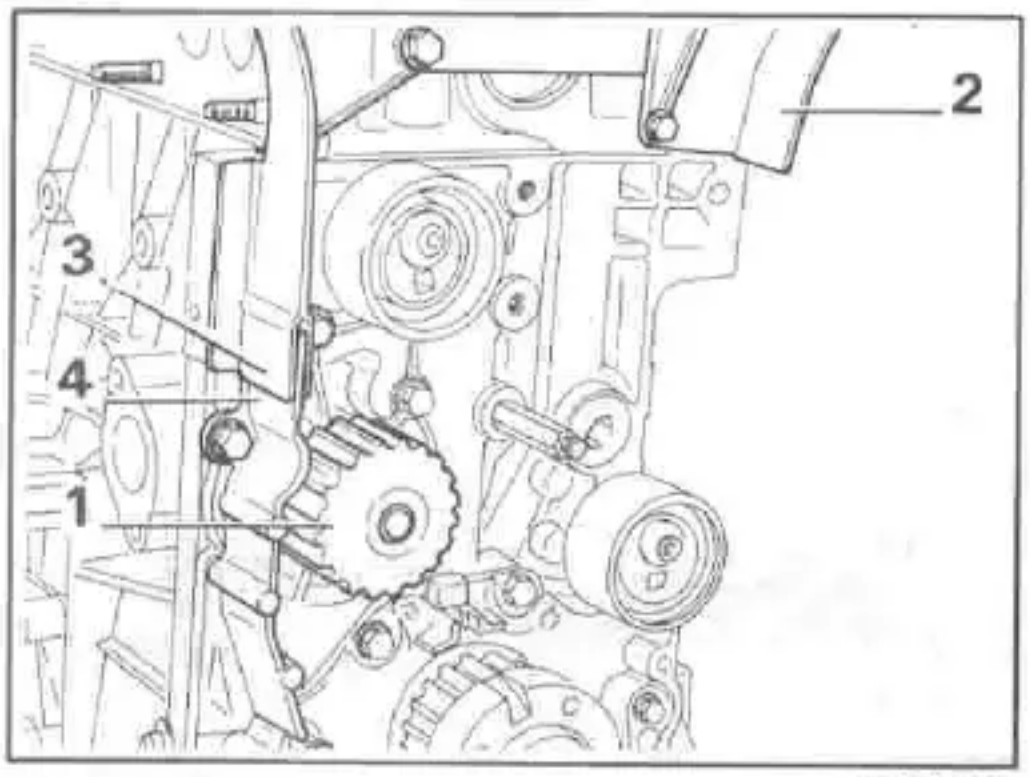

9-5-88 C78

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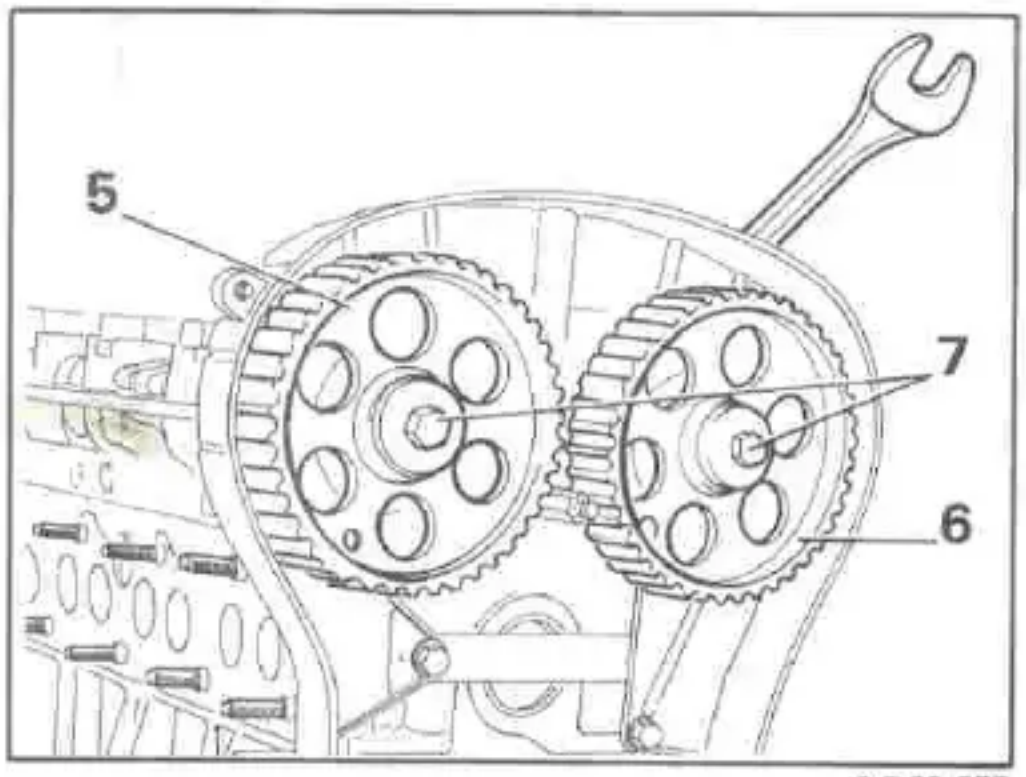

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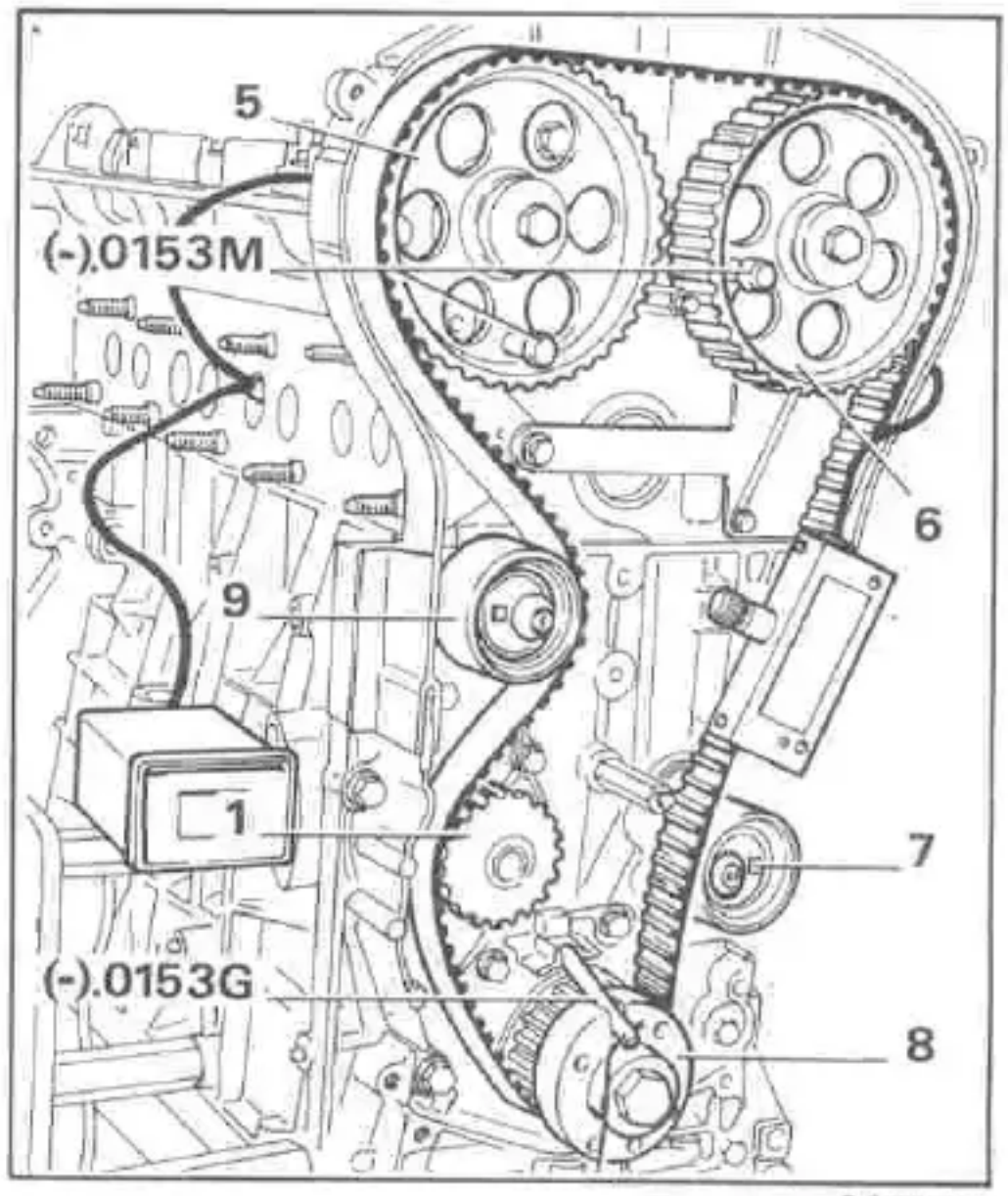

9-5-88 C59

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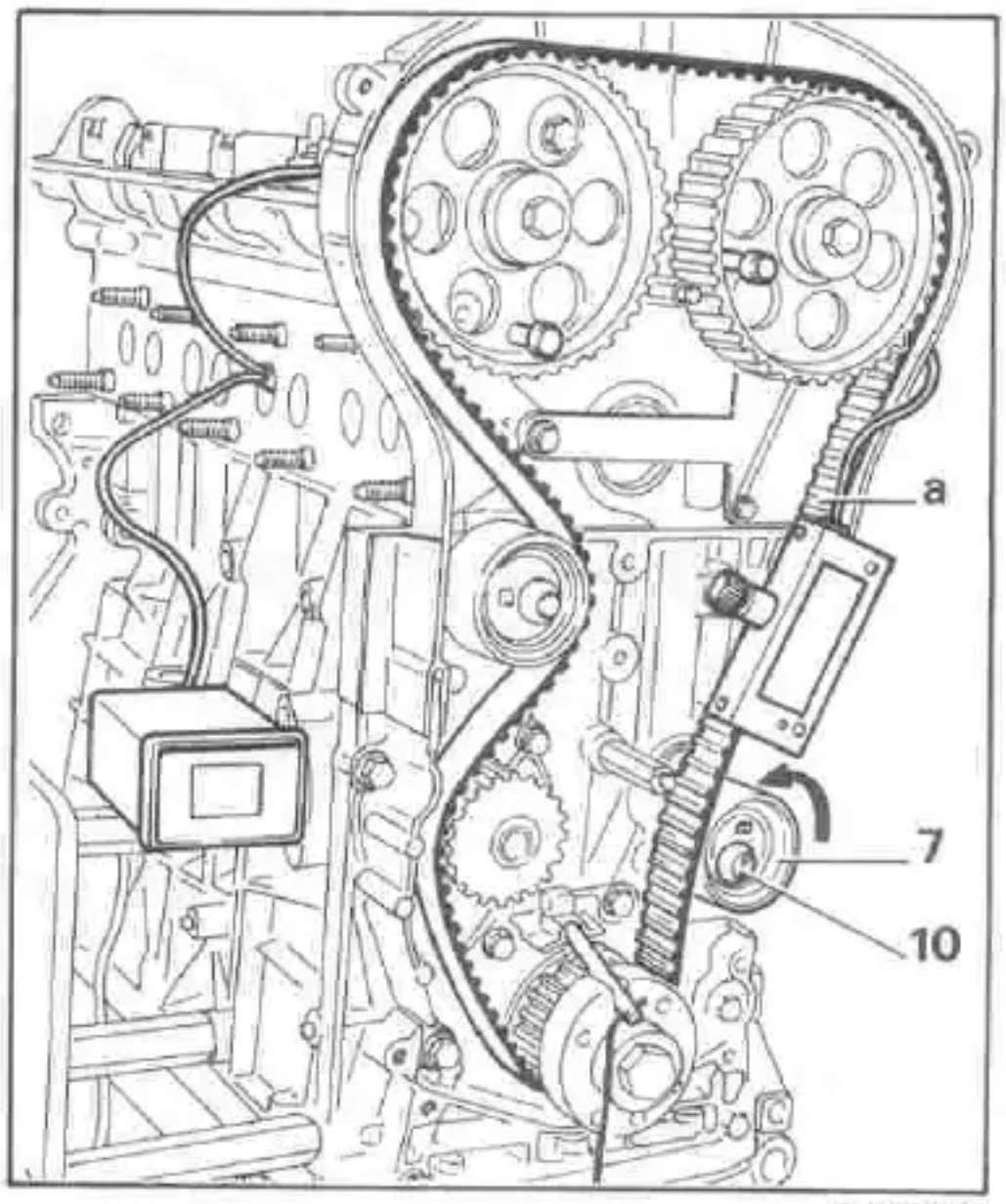

9-5-88 C57

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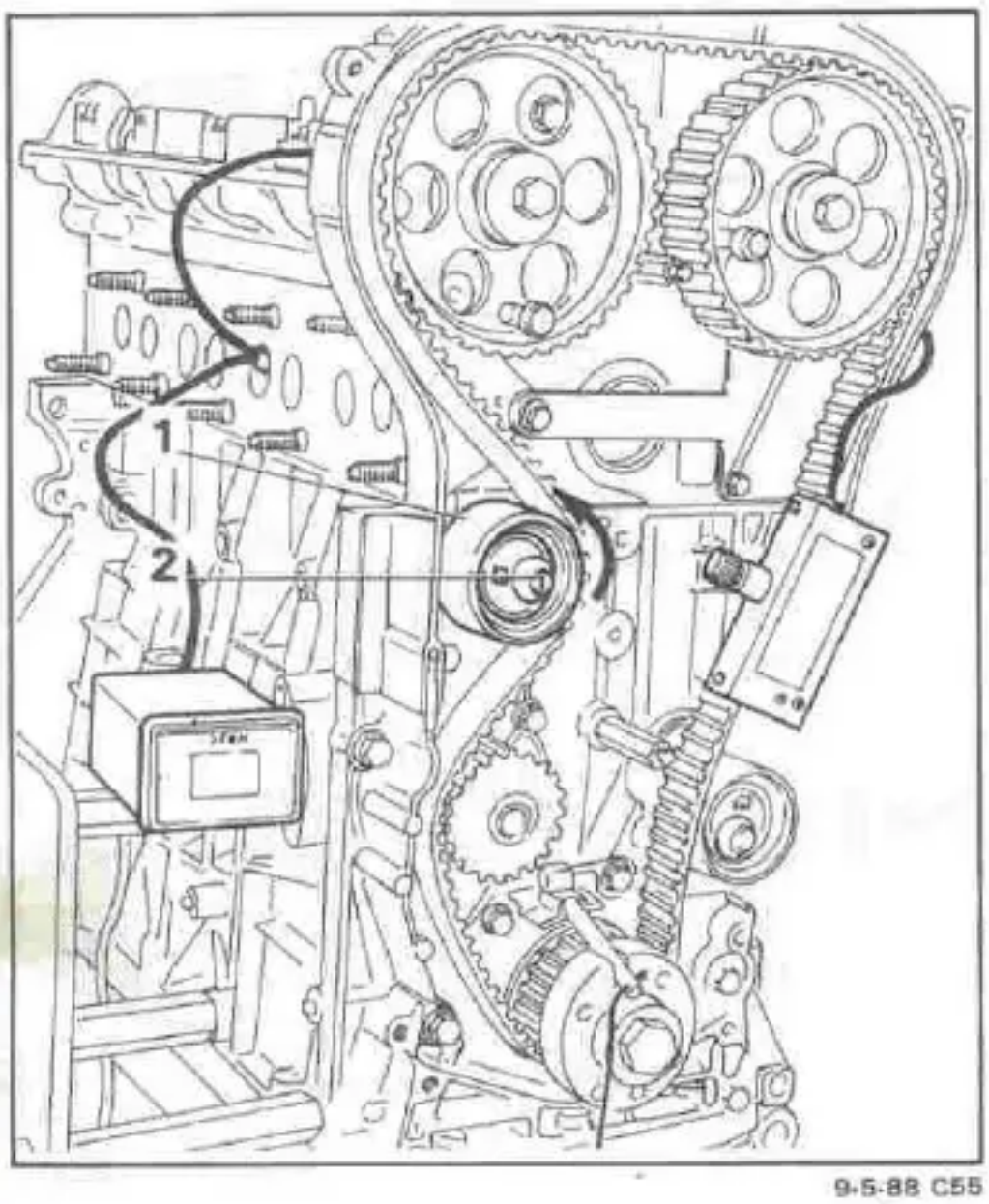
I



9-5-88 C55

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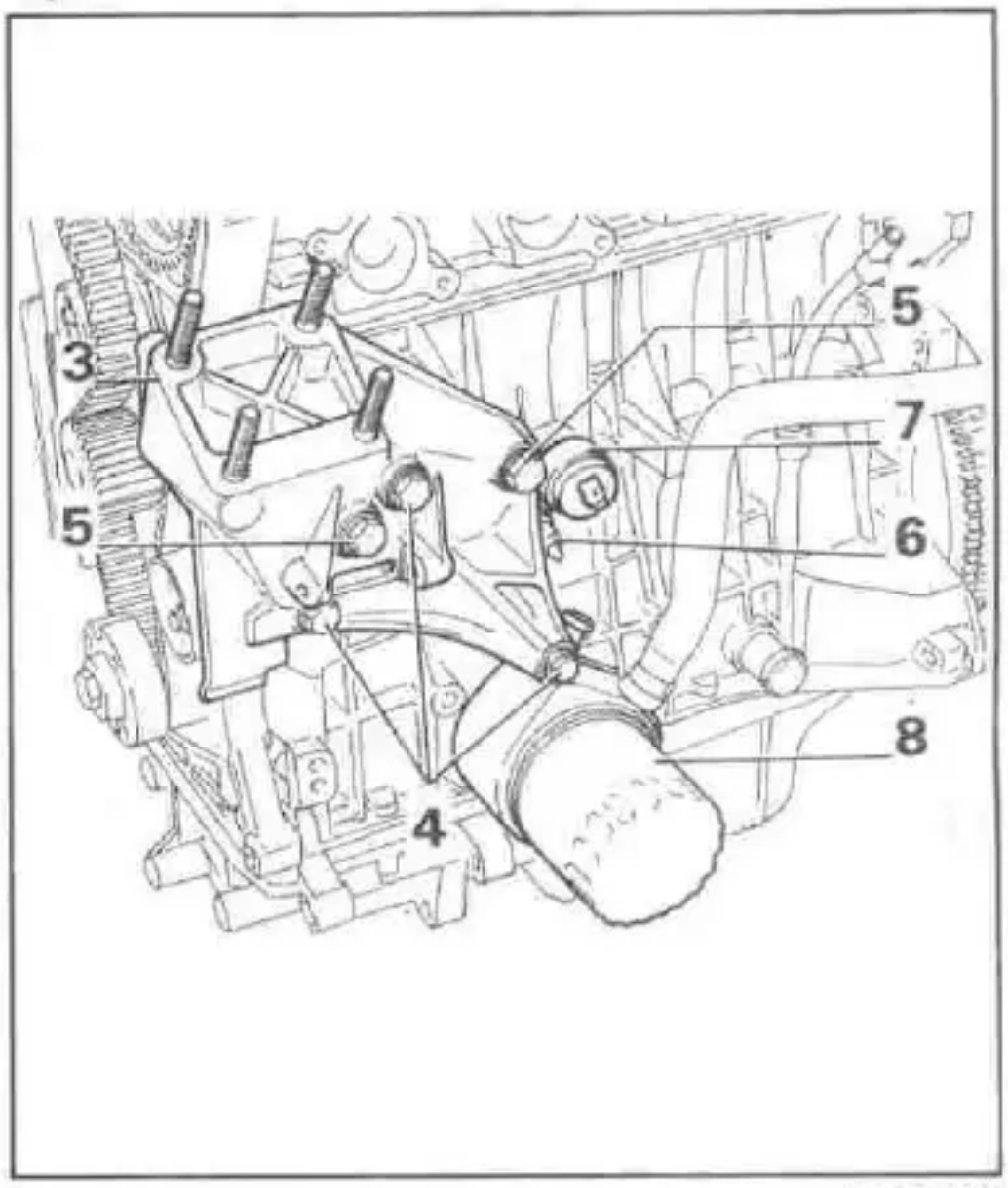

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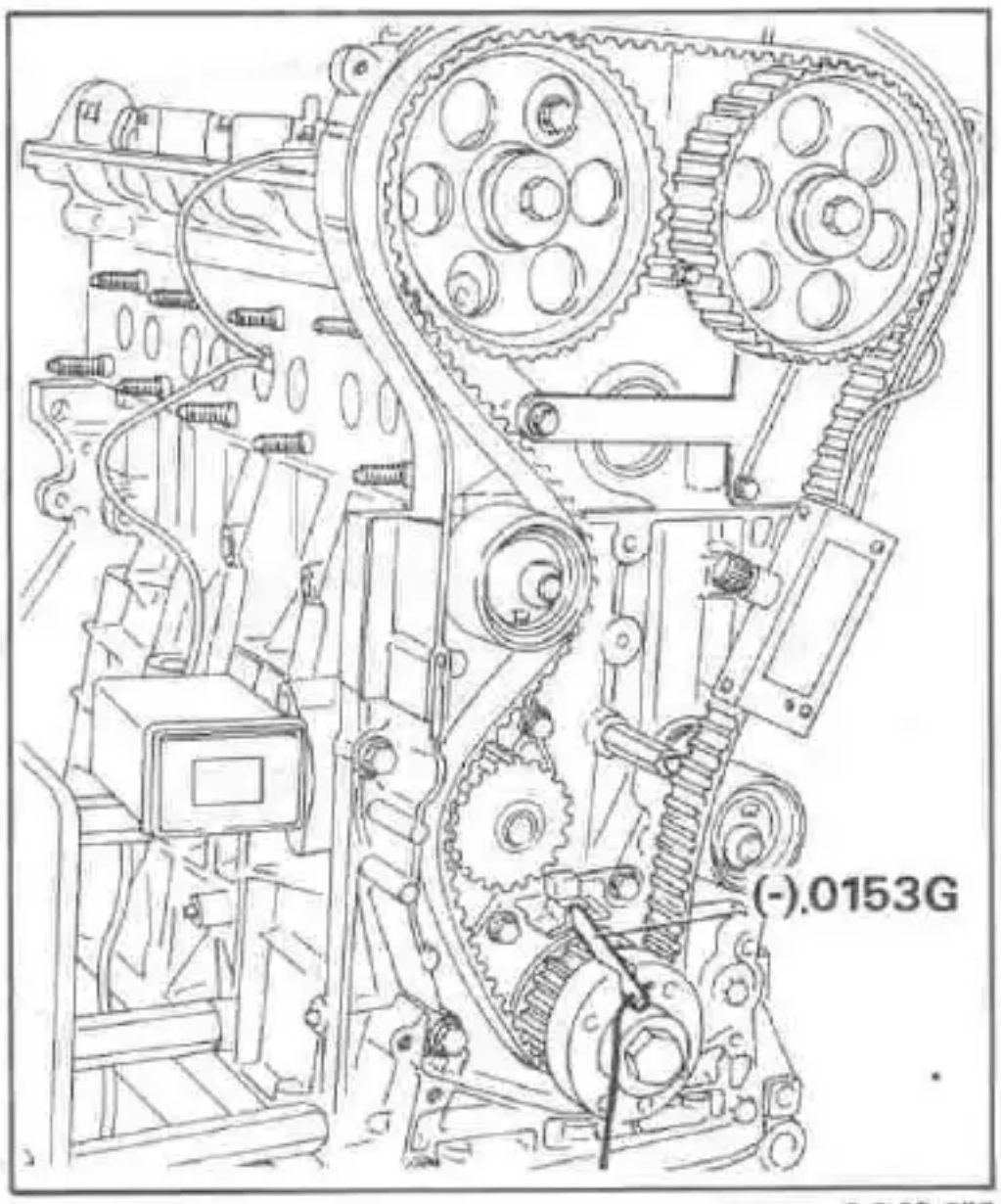

9-5-88 C55

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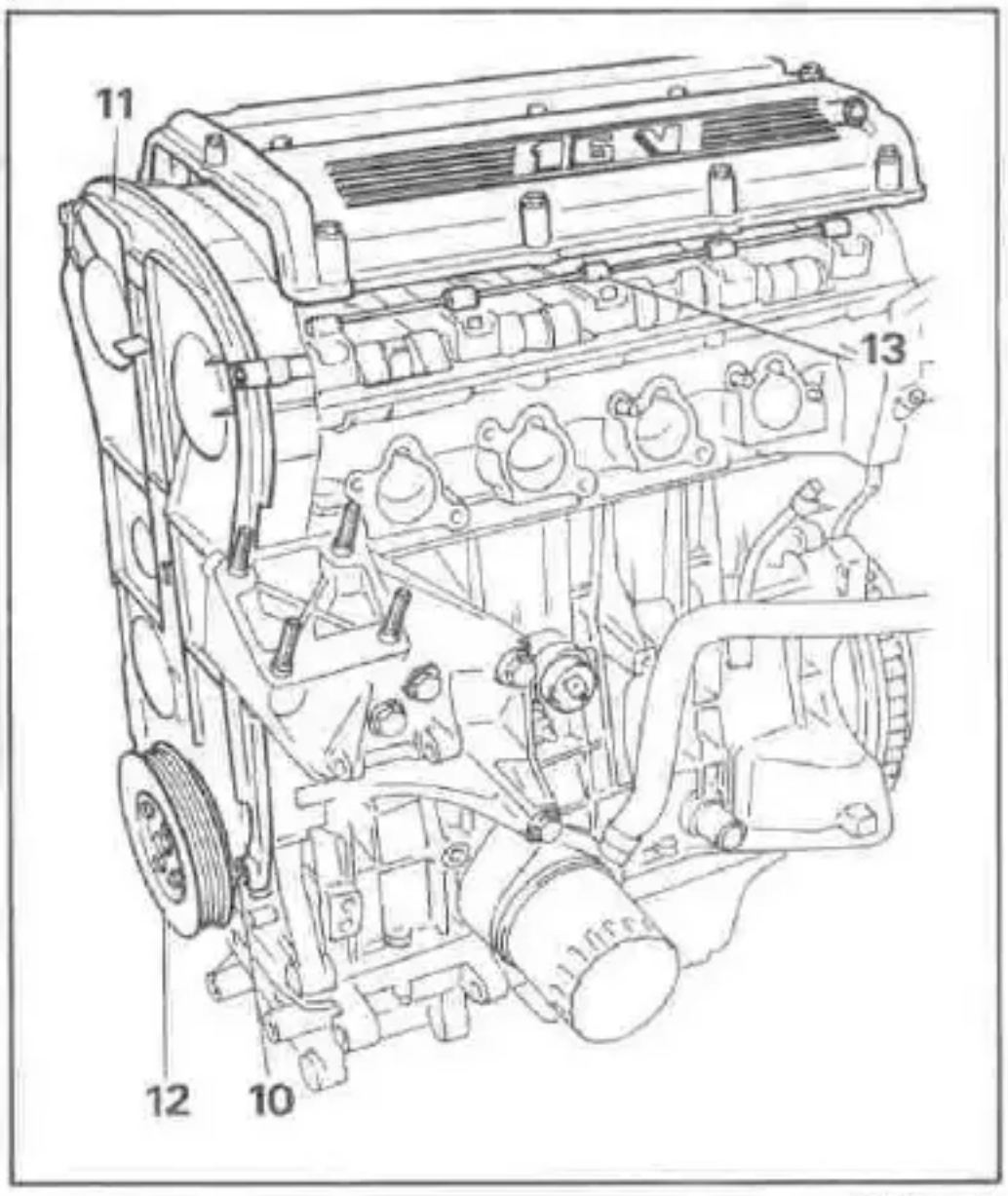


9-5-88 C87

I

- Turn the tension roller **(1)** anticlockwise to obtain a reading of **21** SEEM units (**8** daN/run) on the display

- Tighten the bolt **(2)** to **20 Nm (15 lbf ft)** without moving the position of the tension roller

- Remove the three rods

- Turn the crankshaft two revolutions in the running direction

II

- Position the crankshaft using rod **(-).0153 G**

IMPORTANT

It must be possible to insert the camshaft gear rods easily. If not, repeat the operation

- Attach the equipment to the belt

- A reading of between **40** and **50** SEEM units (**20** to **30** daN/run) should be obtained

- If the reading is outside this tolerance repeat the belt tensioning operation

- Remove the setting rod

III

- Coat the bolts with THREADLOCK LOCTITE and fit the engine mounting **(3)**

NOTE
Ensure the centralising dowel is fitted to the cylinder block

- Tighten :
  - the bolts **(4)** to **45 Nm (33 lbf ft)**
  - the bolts **(5)** to **72 Nm (53 lbf ft)**

- Fit :
  - the oil pressure switch **(6)**
  - the oil pressure sensor **(7)**
  - the cooler **(8)**, with the bolts coated with THREADLOCK LOCTITE
  - the oil filter

IV

- Fit covers **(10)** and **(11)** in that order

- Tighten the bolts to **10 Nm (7 lbf ft)**

- Fit the crankshaft pulley **(12)** and tighten to **25 Nm (18 lbf ft)**

- Fit :
  - the lubrication pipe **(13)**
  - the spark plugs
  - the cylinder head cover and tighten the bolts to **10 Nm (7 lbf ft)**

XU9J4	RE-ASSEMBLY

I

- Fit :
  - the sealing plate **(1)**
  - the rotor support **(2)**

- Coat the bolts **(3)** with THREAD-LOCK LOCTITE and tighten them to **40 Nm (30 lbf ft)**

- Fit :
  - the rotor **(4)** and tighten the bolts to **3 Nm (2 lbf ft)** (nominal)
  - the distributor cap **(5)**

II

- Coat the thermostat housing **(6)** with sealing compound (SILICONE CLASS 1)
- Fit :
  - the thermostat housing and tighten to **10 Nm (7 lbf ft)**
  - the thermostat, the joints and the housing cover
- Fit :
  - the plug leads
  - the plate **(7)**
  - the half cover **(8)**
  - the pulley **(9)**
- Tighten the bolt **(10)** to **45 Nm (33 lbf ft)**

III

- Fit the inlet manifold **(11)** with its gaskets and tighten to **20 Nm (15 lbf ft)**

IV

- Fit the alternator and its belt

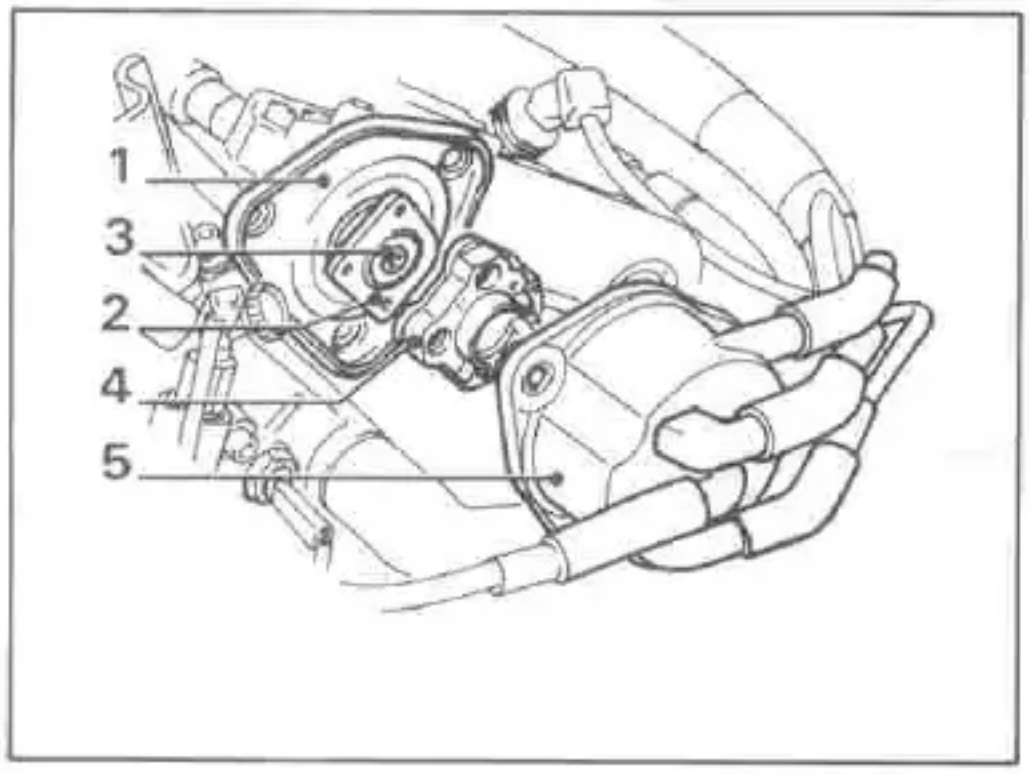
NOTE

- Belt tension
  - new : **80** SEEM units (**75** daN/run)
  - used : **60** to **63** SEEM units (**40** to **45** daN/run)

V

- Fit :
  - the oil level sensor **(12)**
  - the exhaust manifold fitted with new gaskets
- Tighten the nuts **(13)** to **10 Nm (7 lbf ft)**
- Fit the coolant inlet union **(14)** using a new joint

I



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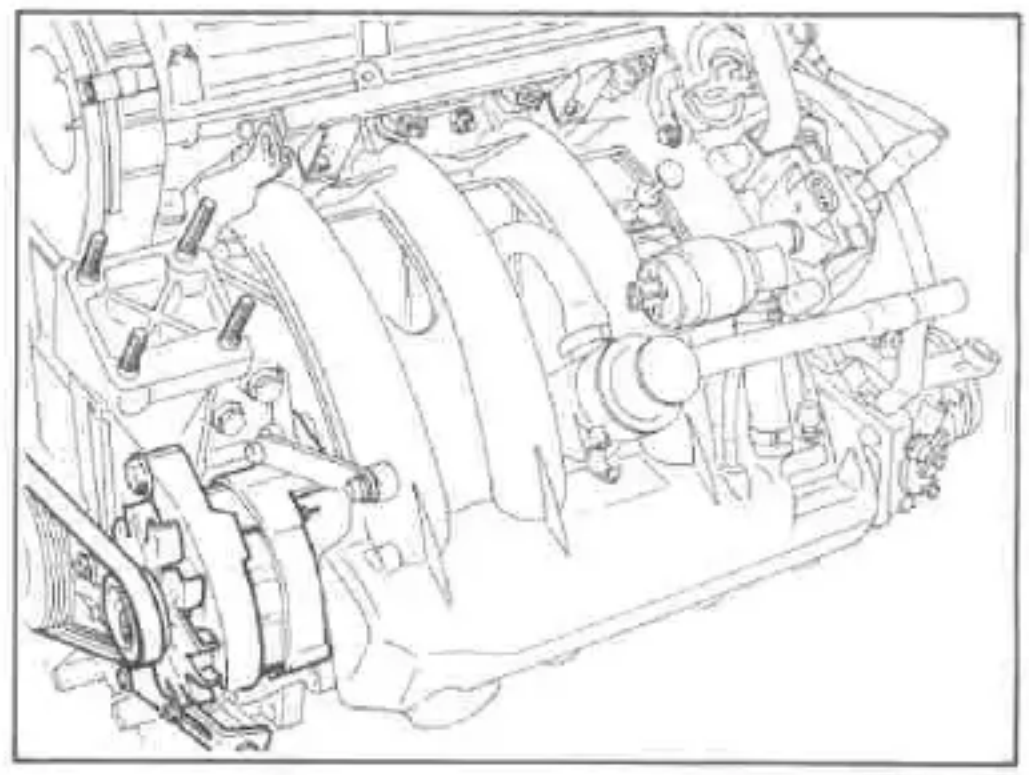

9-5-88 C91

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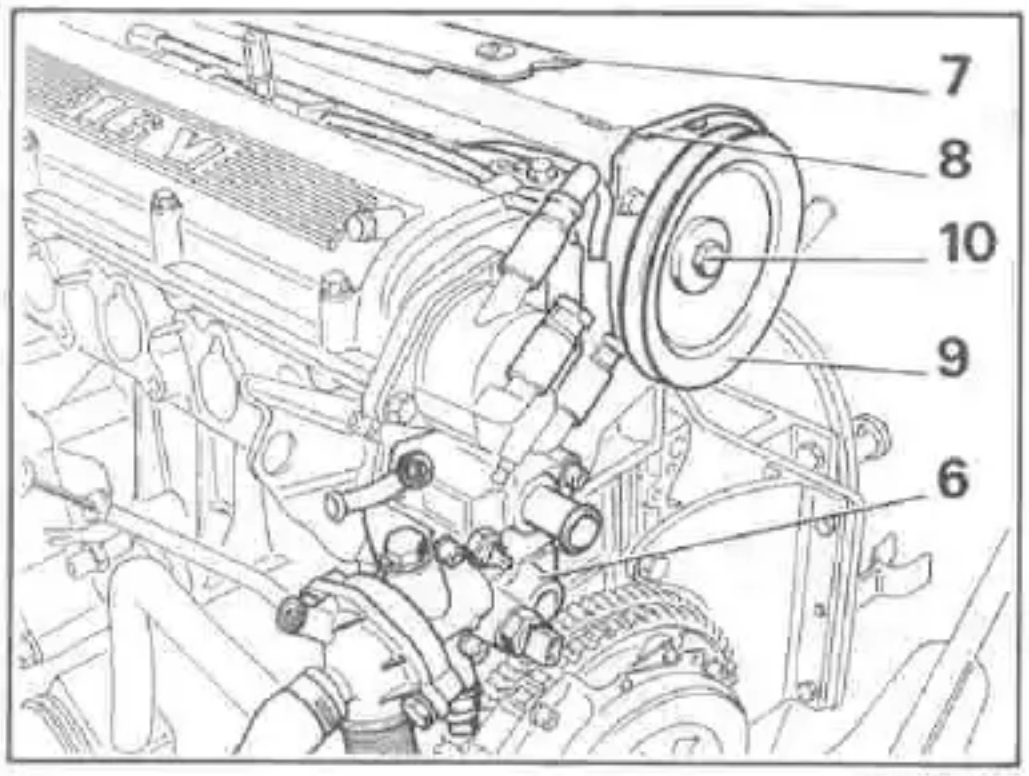

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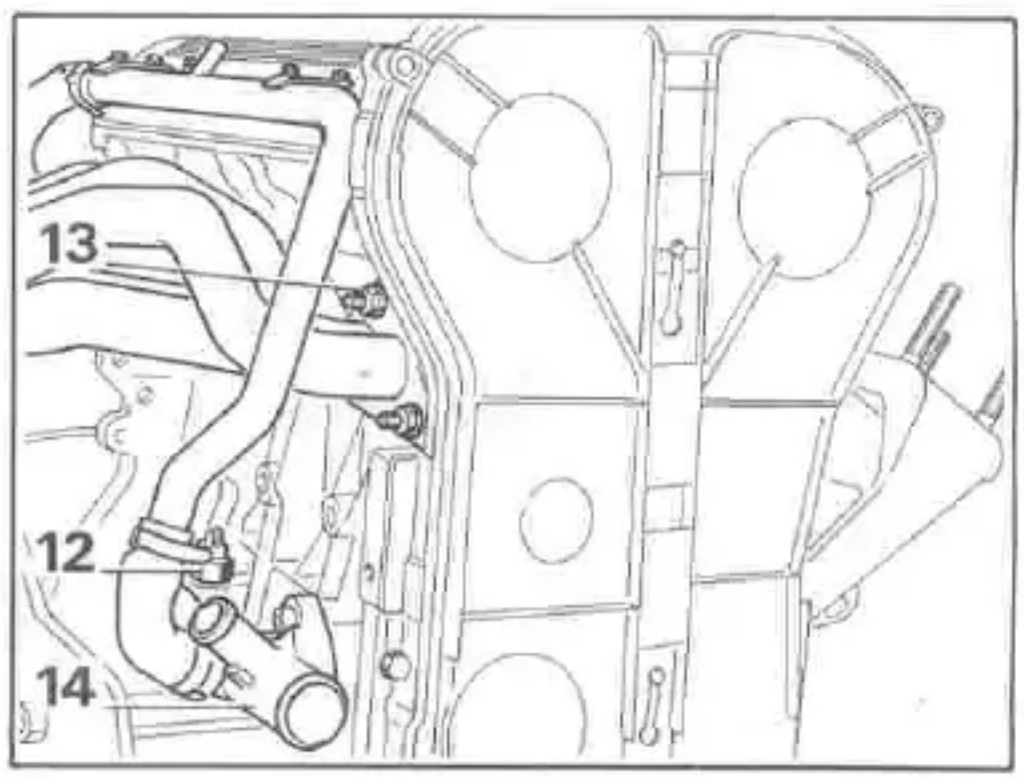

9-5-88 C89

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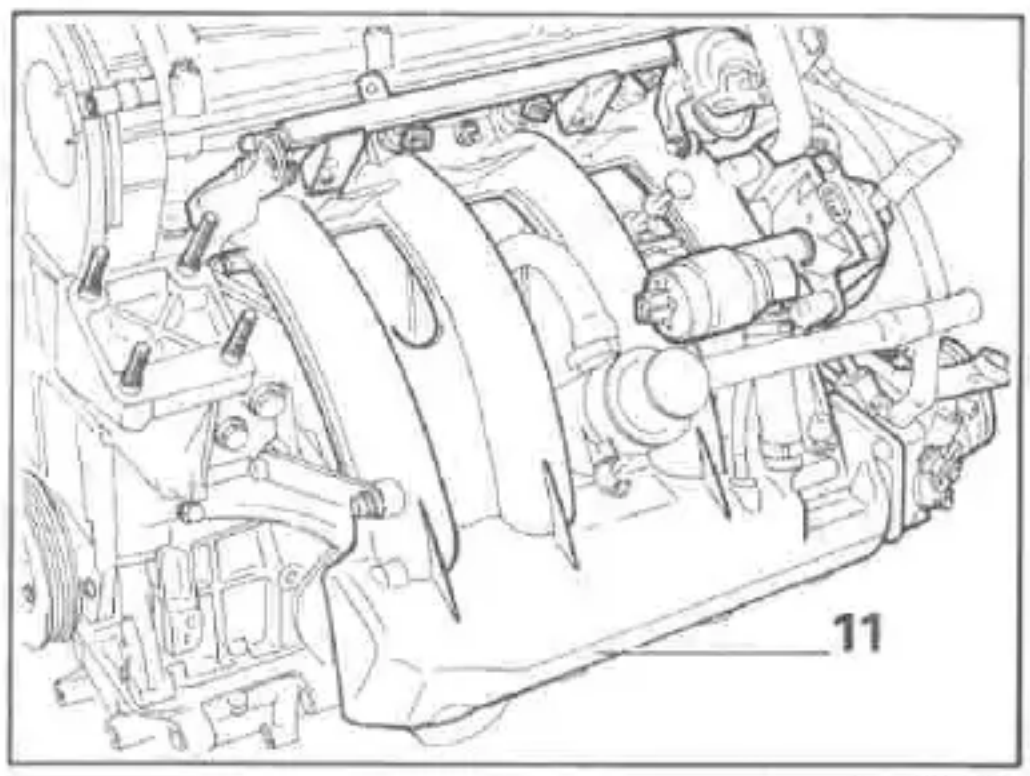

9-5-88 C94

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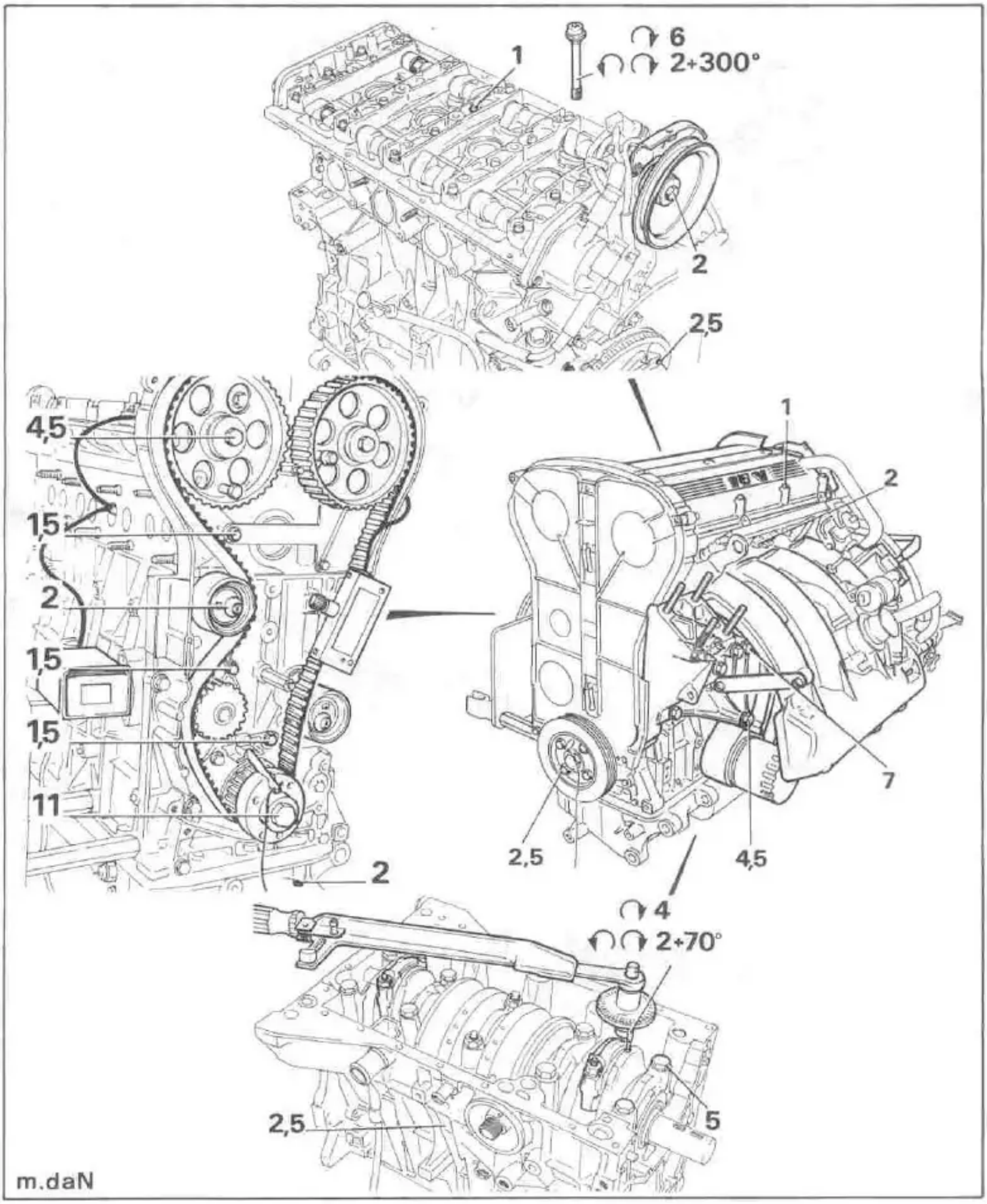

PRINCIPAL TIGHTENING TORQUES	XU9J4

The tightening torques shown opposite are expressed in m.daN. The equivalent values are :

m.daN	lbf ft
1	7
1,5	11
2	15
2,5	18
4	30
4,5	33
6	44
7	52
11	81